

H.264 NETWORK CAMERA

GANZ
PixelPro WITH OXi TECHNOLOGY **SERIES**

| **Web Page User's Manual**

Before connecting, operating or adjusting this product,
read this instruction booklet carefully and completely



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WHAT'S NEW

K1.2.0

- [Network Configuration] HTTP is added.
- [Maintenance] System log is added.
- [Maintenance] Firmware Update is changed.
- [Basic Configuration] Users is changed.
- [Video&Audio] Repositioning is changed.
- [Video&Audio] Stream is changed.
- [Event Configuration] TCP Notification is added.
- [Event Configuration] TCP Server is added.
- [Event Configuration] Multicast Notification is added.
- [Event Configuration] Event Profile is changed.
- [Peripheral] DI/DO is changed.

K1.4.0

- [General] ONVIF support
- [General] Supports 3rd party (ExacQ VMS, GENETEC) software
- [General] multilingual support (Chinese)
- [Maintenance] DB maintains the setting after the F/W update
- [Maintenance] Configuration imported export capability added
- [Added] UserFS support
- [Added] Authentication option added in RTSP (Network Configuration)
- [Added] Motion Metadata
- [Added] 640 x 360 resolution support
- [Added] White balance mode added in Camera setting
- [Added] SNMP added under Network setup
- [Added] Language setting
- [Change] Repositioning UI improvement and Pan/Tilt motor revolution's indication
- [Change] Refresh Interval tab (Live – Panel – Status) moved to top
- [Change] Video stream description (Setup – Video & Audio – Stream) in UI revised
- [Change] "Firmware Update" in web UI is now "Firmware Upgrade"
- [Change] 2nd stream enabled when VCA is active
- [Change] TI H264 Codec used
- [Change] HTTP API response time improvement
- [Change] Configured HTTP port now maintains even after S/W factory reset
- [Change] Burnt-in-Text unavailable if screen resolution is smaller than 352x240
- [Change] 2nd stream now also transfers metadata when VCA is activated
- [Fixed] Firmware upgrade from IPAdmintool error fixed
- [Fixed] Symbol letter "%" now can be used in Friendly Name box
- [Fixed] Flashing Log-in window in Opera browser effect is now fixed
- [Fixed] Buttons appear smaller in setup page after factory reset is now fixed
- [Fixed] Heartbeat bug that occurs when CBR's bit-rate is set too high or too low fixed

K1.4.0.7

- [Change] Recording option
- [Added] FTP recording as the event action

K1.4.0.10

[Change] Day & Night setting

K1.4.1.10

[Added] PTZ panel in Live View Page

[Added] WDR and Auto Focus Mode in Camera Settings

[Added] PTZ Toruing and Autorun configuration

K1.5.0.9

[Added] Third party API and Onvif options.

[Added] Recording in SD memory as the event action.

[Added] Event search and Download the recording file.

[Change] Exposure control options.

[Added] Privacy Zone options

K1.5.0.12

[Fixed] Classification Filter not applied in zones and rules in VCA

K1.6.0.4

[Added] Features relevant to the encoder

[Added] Video-In menu for the encoder

[Added] Video resolution for the encoder

[Added] RS-485 configuration page

[Change] PTZ configuration page

[Added] RACK system information on About page

[Change] Relocation of Event Search to the maintenance category in Setup

[Added] Image Rotation in Camera Setting

[Change] Minimum shutter speed changed from 1/5000 per second to 1/10000 per second.

[Added] Smart IR function

[Added] Refocus for transition of day and night

[Change] Privacy Mask setting for PTZ positional change

[Added] Trigger mode in VCA source in Event Rules

[Added] Inactive option for DI in Event Source under Event Rules

[Added] Attaching snapshots of pre image in e-mail notification in Event Action in Event Rules

[Added] Duration (time extension) setting for DI in Sensor/Alarm

[Added] Replay attack protection for ONVIF in API maintenance setting

[Change] UI rearranged in API maintenance setting

[Added] Link-local address in TCP/IP

[Added] Option of 'basic' in Authentication type under RTSP/RTP

[Added] Options of NO-IP and FreeDNS in DDNS Protocol Type

[Added] Save event log in Event Action under Event Rules

[Added] Multiple DIDs in Event Configuration

1. INTRODUCTION

1.1. Welcome

This manual explains how to interface with the H.264 codec supporting IP camera series using the Microsoft® Internet Explorer web browser. The Web Page of the product has been implemented with the protocols below:

- HTTP API – Parameter configuration commands
- RTP/RTSP – Video, Audio, and Metadata Streaming
- Active X program – Image display on client PC

1.2. Getting Started

Before utilizing the web interface, install and connect the camera and other physical devices. Refer to the hardware manual supplied for the product installation steps. The installation manual provides detailed information for installation and configuration of the device.

1.3. IP Address Setting

How to find the IP Address of your device:

The product has its unique IP address, and users can identify the address by converting the MAC address' last two digits of hexadecimal numbers described on the sticker that is attached to the device. Refer to the following figure, and convert the MAC address to an IP address. Type the identified IP address in the address bar of the Internet Explorer to access the web page of the product.

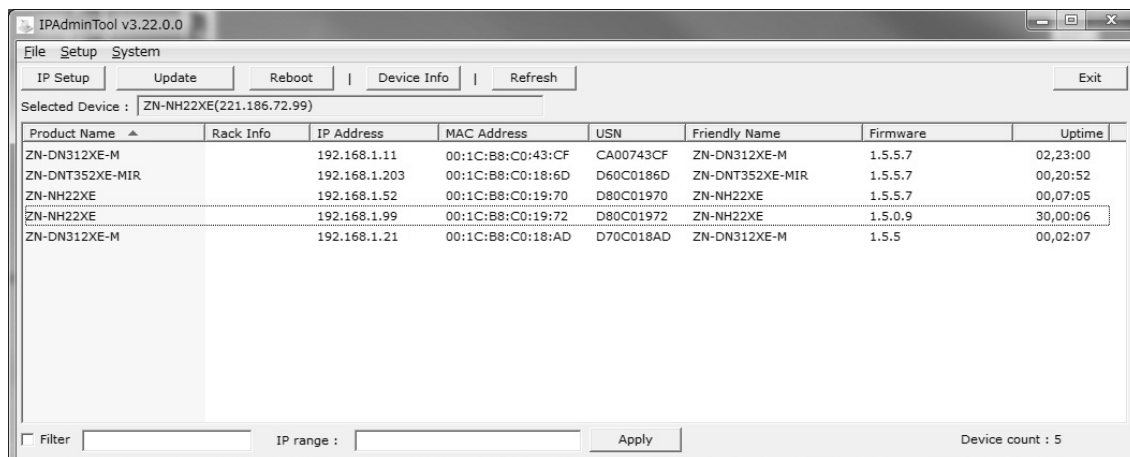


MAC address = 00-1C-B8-01-23-45 → IP address = 192.168.35.69

Convert the last two sets of hexadecimal numbers to decimal numbers.

How to change the default IP address:

IPAdminTool software allows users to search and change the IP address of connected devices. The figure below shows a main UI of the *IPAdminTool*. The *IPAdminTool* helps to search multiple devices. Please refer to the '*IPAdminTool User's Manual.pdf*' for the detailed information and its usage.



What is IPAdminTool?

IPAdminTool automatically scans all of the products including encoders and cameras on the network and displays product's information, including product name, IP address, MAC address, firmware information, and devices' uptime. The tool also allows users to change the IP address or update the firmware. It is highly recommended for users to review before using this tool for better understanding the software functions and administration controls.

Limitation of the concurrent clients

Depending on streaming configurations and settings, simultaneous connections might reach the limitation due to system maxed-out capability.

- ✓ RTSP Streaming, Unicast: Heavily depends on the maximum throughput in a given time.

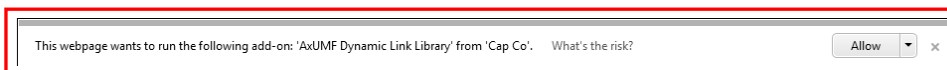
2. USING A WEB BROWSER

After the network and power connection are established, access the web browser to view the live streaming of the connected device. Installation of the ActiveX is required to see the live page and to access full controls in Microsoft® Internet Explorer.

2.1. ActiveX Installation (AxUMF.cab)

For full control of a device through a web browser, installation of the ActiveX control is required. Refer to the following steps to install the ActiveX. Disable the Pop-up blocker or run "Add-on" notice in a browser to install the ActiveX and Installation file.

1. Click the installation warning message on the view page as below. JPEG snapshot is displayed every 1 second before you install AxUMF.cab



2. Click the **Install** button on the security warning message box. If the page is not responding after the installation, refresh the page.



3. Install "setup.exe" by clicking the link shown on the main page. JPEG snapshot is displayed every 1 second before you install "setup.exe".



Do you want to run or save **setup.exe** (293 KB) from 192.168.58.85?

Run Save Cancel

4. Follow the instructions of the dialog boxes, and complete the installation.



5. When the dialog box appears to request user name and password, enter the default value for the administrator account (case-sensitive) as below:

User Name: root

Password: pass

6. Refresh the page and check if the live image is displayed successfully.



If ActiveX is not run properly, please make sure all of your software components are up to date:

.NET Framework V3.5

<http://www.microsoft.com/en-us/download/details.aspx?id=21>

Microsoft Visual C++ 2008 SP1 Redistributable Package (x86)

<http://www.microsoft.com/en-us/download/details.aspx?id=5582>

2.2. Recommended PC Specification

The following table describes the recommended requirement of the PC system to use a Web browser with our products.

Item	Recommended
VGA	D3D support
OS	XP, Vista, 7
Direct X	9.0



Only **Internet Explorer 8 or higher version x86** is officially supported.

3. LIVE PAGE CONFIGURATION

When the device is accessed via the web browser, the live image of the device appears on the window. To go back to the **Live** page either from the **Storage** or **Setup** page, click Live on the upper left corner of the web page.

3.1. Log In

To access the device on the web browser:

1. Enter **root** for the user name and **pass** for the password on the pop-up window.
2. Click the **OK** to access the main page.



3.2. Live Page Menus

Option Tab



Panel: Clicking the Panel button enables users to hide/show the menu tabs.

Stream: The drop-down box displays available streams of the camera for users to select from.

Size: Users may select the size of image that is displayed on a web page.

- Fit: Image size is reduced / enlarged to "fit" into the current web window.
- 25%: Image size is reduced to a quarter of original resolution.
- 50%: Image size is reduced to a half of original resolution.
- 75%: Image size is reduced to three quarters of original resolution.
- 100%: Image size is displayed as its original resolution size.
- 150%: Image size is 50% more enlarged than its original resolution size.
- Full: The image is shown on a full screen mode.

Trigger-Alarm(DO): Users may enable or disable the alarm. Setting up the alarm from the setting menu is required. (**Setup > Peripheral > DI/DO**)

Audio:

- Audio-Speaker will be activated when the **Enable** check box of **Audio Input (Setup > Stream > Audio)** and **Enable audio stream check box (Setup > Network Configuration > RTSP/RTP)** are ticked.
- Audio-Microphone will be activated when the **Enable** check box of **Audio Output (Setup > Stream > Audio)** is ticked.

Status Tab



Status: Status panel displays items listed below.

- **Refresh Interval:** Refreshing interval of the status panel.
- **CPU:** Usage of CPU
- **Memory:** Usage of memory
- **Time:** Time after booting
- **First Stream/Second Stream/Snapshot:** Current information of each stream.

If the live image is not shown,

1. Check if the camera is powered on and connected properly.
2. When using the Internet Explorer, check if the ActiveX control is installed. For other types of web browsers, the live image is displayed via QuickTime Player.

PTZ Tab



PTZ Tab is shown if the model supports PTZ operation or it is Speed PTZ camera.

Direction Movement: Click the desired button to move Pan/Tilt.

Zoom In/Out: Click '+' button to zoom in (Tele) and '-' button to zoom out (Wide).

Focus Near/Far: Click '+' button to focus in near and '-' button to focus in far.

Speed: Adjust the speed of the pan/tilt control.

Pre Position: Preposition can be set up to 255.

Tour: Tour shows the video stream from the different preposition in a pre-defined order for intervals. Select the Touring Number and then click the Start button to start the predefined Touring. If you want to stop Touring immediately, Click Stop button. Please refer to **5.7.1 Touring** for the configuration.

Home Position: One position can be set as the Home position which is readily accessible by just clicking "Go" or goes to when there is no operation with Autorun. Please refer to **5.7.2. Autorun** for the configuration.

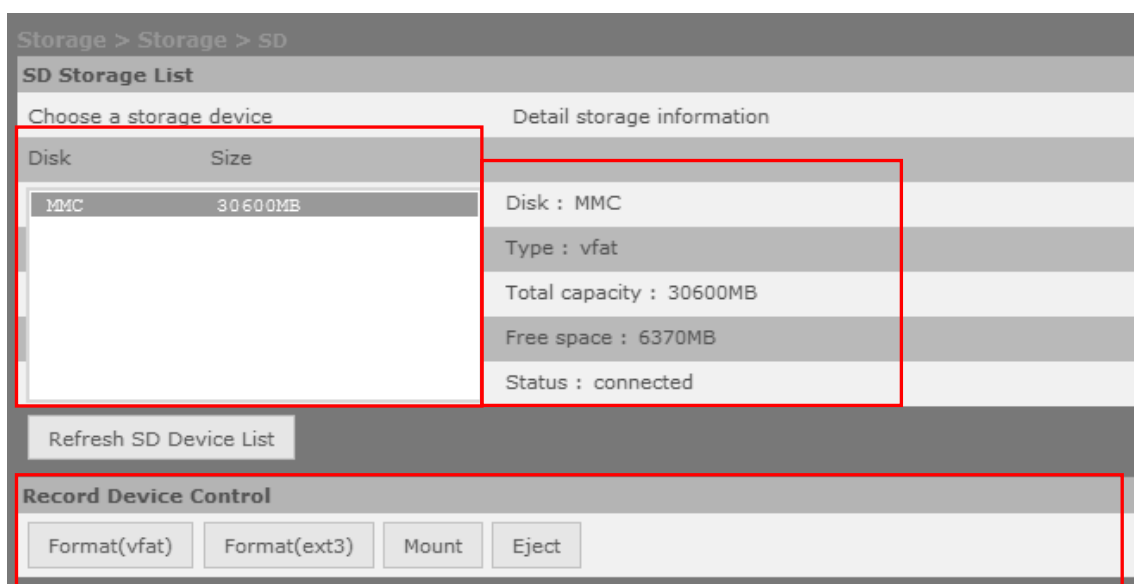
4. STORAGE CONFIGURATION

From the Storage page, a user can configure a storage device and recording.

4.1. Storage device settings

4.1.1. USB/SD Storage

To search for mounted USB or storage devices and check the device information, click **Storage**.



- ① **Device List:** The mounted devices are listed by clicking “Refresh USB/SD Device List”.
- ② **Device Information:** The detailed information of the selected storage device is displayed. The information includes device name, type, total capacity, free space, and device status.
- ③ **Record Device Control:** allows users to format a storage device as vfat or ext3 file system, and mount or eject storage device that is available from the device list.

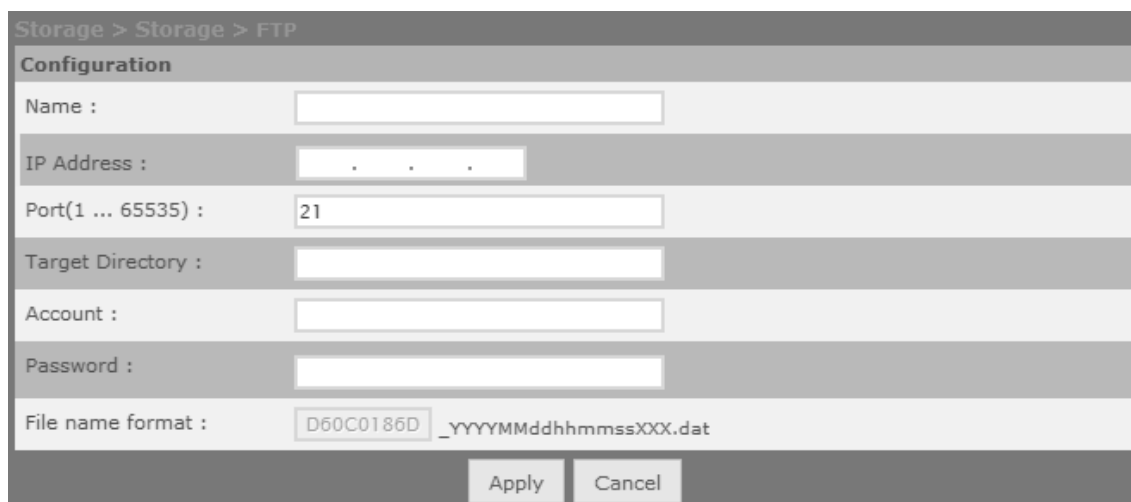


Ext3 file system is recommended due to its resilience against data loss in case the card is ejected or if there is abrupt power loss. Class 4 or higher Class SD card is recommended when recording high resolution video.

To start the recording, the device must be connected. If the connected device does not appear, try to reboot the device and check its status again.

4.1.2. FTP

To specify the FTP server to record the video and audio, click **Storage > FTP**. Please note that this is the configuration for FTP server used only for the event recording. Please refer to **4.2.3 Event recording** and **5.3 Event Configuration** for more details.



Storage > Storage > FTP

Configuration

Name :

IP Address :

Port(1 ... 65535) :

Target Directory :

Account :

Password :

File name format :

Name

Specify the FTP server name.

IP Address

Enter the FTP server address.

Port

Enter the server port number. The default is 21.

Target Directory

Enter the target directory to store the data.

Account

Enter the login user name of the FTP server.

Password

Enter the password of the FTP server.

Prefix of filename

Relevant name that will be used as the recorded file. For easier recognition of duplicate files, the end of every recording file name includes the serial number which device uploads the recording file, date/time, and index information as a default.



Note

The date and time in the recorded file name is based on UTC time.

4.2. Recording

4.2.1. Recording file format



The Recording Format dialog box has a title bar 'Recording Format'. Below the title bar, there are three radio buttons: 'Continuous' (which is selected), 'Event', and 'None'.

Continuous

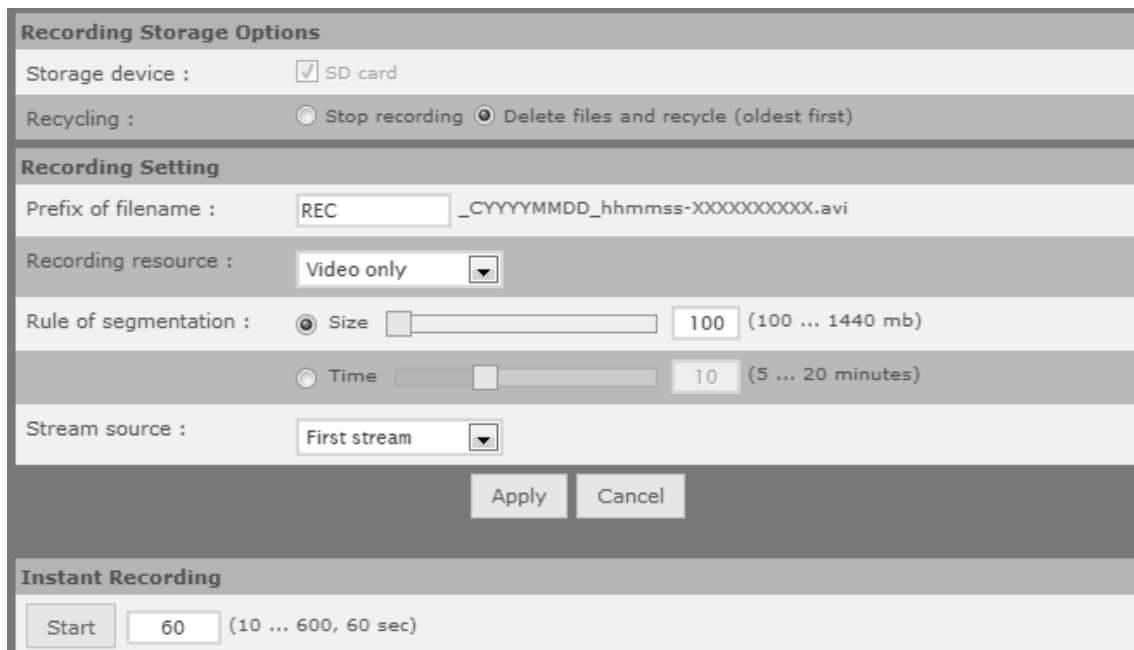
In this mode, the media data is striated as Standard AVI format that is a multimedia container format.

Event

The camera owns recording file format that can be used for the event recording.

4.2.2. Continuous recording

For the Continuous configuration, click **Storage > Recording > Configuration**. On this page, users can configure the recording storage option and recording conditions and perform the instant recording.



The configuration interface is divided into two main sections: 'Recording Storage Options' and 'Instant Recording'.

Recording Storage Options

- Storage device :** ☒ SD card
- Recycling :** ☐ Stop recording ☒ Delete files and recycle (oldest first)

Recording Setting

- Prefix of filename :** REC _CYYMMDD_hhmmss-XXXXXXXXXX.avi
- Recording resource :** Video only (dropdown menu)
- Rule of segmentation :**
 - ☒ Size (100 ... 1440 mb)
 - ☐ Time (5 ... 20 minutes)
- Stream source :** First stream (dropdown menu)

Buttons: Apply, Cancel

Instant Recording

- Start (10 ... 600, 60 sec)

The screenshot shows a configuration window with two main sections: 'Recording Storage Options' and 'Recording Setting'. In the 'Recording Storage Options' section, 'Storage device' is set to 'SD card' (checked), and 'Recycling' is set to 'Delete files and recycle (oldest first)' (selected with a radio button). The 'Recording Setting' section includes 'Prefix of filename' set to 'REC', 'Recording resource' set to 'Video only', 'Rule of segmentation' set to 'Size' with a value of '100' (range 100 ... 1440 mb), and 'Stream source' set to 'First stream'. 'Apply' and 'Cancel' buttons are at the bottom right.

Recording storage Options

- **Storage device:** SD card is pre-ticked and selected.

- **Recycling** options

Users can select one of the options when the storage is full.

- **Stop recording:** Stops recording and keeps the recorded data.
- **Delete files and recycle (oldest first):** Replaces oldest files with latest files (based on dates).

Recording Setting

- **Prefix of filename**

Give relevant name that will be used as the recorded file. For easier recognition of duplicate files, the end of every recording file name includes the date and time information as a default.

- **Recording resource**

Select the choice between 'Video only' and 'Audio+Video'.

- **Rule of segmentation**

(by) Size: The range of the file size is from 100 to 1440 Megabytes.

(by) Time: The range of the recording length is from 5 to 20 minutes.

- **Stream source**

Users may choose primary recording source from either first stream or second stream.

If it is a single stream, the second stream option is unavailable.

Instant Recording

If the Start button is pressed, the recording will be started immediately. Before pressing the start button, input recording time (seconds) in the box next to the start button. The system default is 60 seconds, and the available recording time is from 10 to 600 seconds. (10 minutes) While the recording is in progress, the button label changes from "Start" to "Stop"; Users can manually stop the recording while it is being progressed. NOTE: If Instant Recording doesn't show on the page, make sure to select **Continuous**, and click **Apply**.

The screenshot shows the 'Instant Recording' dialog box. It contains a 'Start' button, a text input field with '60' (range 10 ... 600, 60 sec), and a filename '*REC-I20131008-155751-0000000002.avi'. A 'Download' button is highlighted with a red rectangle on the right side.

When the recording is complete, click 'download' button appears on far right; Click the button to download the recording as a file.

4.2.3. Event recording

To configure the event recording, click **Storage > Recording > Configuration**, and then select **Event of Recording Format**. On this page, users can choose the desired storage (SD card, or FTP server) for event recording and set related recording parameters.

The screenshot shows the 'Recording Storage Options' and 'Recording Setting' sections. In the 'Recording Storage Options' section, 'Storage device' is set to 'ftp' and 'Use SD buffer' is checked. In the 'Recording Setting' section, 'Recording resource' is 'Video only', 'Event hold off time' is 23 seconds, and 'Stream source' is 'First stream'. 'Apply' and 'Cancel' buttons are at the bottom.

The screenshot shows the 'Recording Storage Options' and 'Recording Setting' sections. In the 'Recording Storage Options' section, 'Storage device' is set to 'sd'. In the 'Recording Setting' section, 'Recording resource' is 'Video only', 'Event hold off time' is 23 seconds, and 'Stream source' is 'First stream'. 'Apply' and 'Cancel' buttons are at the bottom.

Recording storage Options

Select the storage device type. If FTP is selected, the SD memory can be used as a buffer to transfer stably.

Recording Setting

- Recording resource

Select the choice between 'Video only' and 'Audio+Video'.

- Event hold off time

Specify the time between the successive triggered events so as to ignore the often repeated event.

Stream source

Users may choose primary recording source from either first stream or second stream. If it is a single stream, the second stream option is unavailable.

4.3. Search and file-download

4.3.1. Continuous recording file download

To view and download the recorded files, click **Storage > Search & Download > Continuous Download**.

Storage > Search & Download > Continuous				
				Search : <input type="text"/> x
Num	FileName	DateTime	Size	Download
1	REC-I20131008-155751-0000000002.avi	10/08/2013 15:57:51	1.3M	[Download]
2	REC-I20131008-153238-0000000001.avi	10/08/2013 15:32:38	836.0K	[Download]

All of the recorded files are listed with maximum 40 files per page on the File Download page. Currently recording file is displayed as [Recording] on the Download column. Users can select the desired file from the list or search it by date. To list up the files which are recorded on a specific date only, click on the Search box. A calendar appears from the search box and select the desirable date. To go back to the original list, click the 'x' button next to the Search box.

To download a file, click [Download]. Then, the pop up window appears for the file download.

4.3.2. Event Search & download

To search event and download the corresponded recorded files, click **Sotrate > Event Search & Download**.

Storage > Search & Download > Event					
<input type="radio"/> Today <input type="radio"/> a Week <input type="radio"/> 15 Days <input type="radio"/> 1 Month <input type="radio"/> 3 Month <input type="radio"/> All <input type="text"/> ~ <input type="text"/>				1.	Search
<input type="checkbox"/> All <input type="checkbox"/> Motion <input type="checkbox"/> DI <input type="checkbox"/> VCA <input type="checkbox"/> Config				2.	
Num	Event Rule Name	Type	Rule Time	Description	Download
1	VCA	vca	2013-10-08 17:24:10	event tp=enter zn=0	
2	VCA	vca	2013-10-08 17:23:51	event tp=enter zn=0	
3	VCA	vca	2013-10-08 17:23:35	event tp=enter zn=0	
4	VCA	vca	2013-10-08 17:23:25	event tp=enter zn=0	
5	VCA	vca	2013-10-08 17:23:14	event tp=enter zn=0	
6	VCA	vca	2013-10-08 17:23:03	event tp=enter zn=0	
7	VCA	vca	2013-10-08 17:22:20	event tp=enter zn=0	
8	VCA	vca	2013-10-08 17:21:15	event tp=enter zn=0	
9	VCA	vca	2013-10-08 17:20:51	event tp=linecounterb zn=1	
10	VCA	vca	2013-10-08 17:20:33	event tp=enter zn=0	
11	MD	md	2013-10-08 17:20:13	zone1 zone2	
12	VCA	vca	2013-10-08 17:19:58	event tp=linecounterb zn=1	

- 1. Users can select or specify a period.
- 2. Users can select event types.
- Event Rule Name: The name defined when creating the rule
- Type: The event type selected on the 3rd row
- Rule Time: The time that the event was detected
- Description: Additional information about the event
- Download: Clicking a floppy disk icon enables users to download the file.

5. SETUP

To configure the setting values of the device, click **Setup** on the main page. To access the Setup page, ID and passwords are required.

5.1. Basic Configuration

The Basic Configuration provides the menus required for the basic settings that users must configure after the camera installation.

5.1.1. Users

Refer to **5.8.1. Users** to get information on how to add, modify, or remove the web page users.

5.1.2. TCP/IP

Refer to **5.4.1. Setting TCP/IP (DHCP, Static IP, DNS setting)** for TCP/IP configuration.

5.1.3. Date and Time

Refer to **5.8.2. Date & Time** for time and date setting.

5.1.4. Stream

The Stream configuration page from **Setup > Basic Configuration > Stream** operates the same way as of the page from **Setup > Video & Audio > Stream**. Refer to **5.2.6. Stream** for the details.

5.2. Video and Audio

To change the setting for video input, burnt-in text, encoder profile, and steam, go to the Video & Audio page by selecting **Setup > Video & Audio**. This menu is configured with five sub menus: Camera, Repositioning, Burnt-in Text, Encoder Profile, and Stream.

5.2.1. Camera (channel naming/video format/ color control)

The camera setting page provides options to:

- Name a channel for the camera
 - Set image attributes
 - Adjust the image exposure
 - Configure Day & Night mode
 - Configure the image signal processing
 - Preview the current setting
1. Click **Preview** to see how the image will appear on the preview window at the bottom of the page prior to the actual modification of camera setting.
 2. Click **Apply** to save changes, and click **Cancel** to return to the previous setting.

Setup > Video & Audio > Camera

General

Friendly name :

Video Appearance

Brightness : 128 (0 ... 255, 128)

Contrast : 128 (0 ... 255, 128)

Saturation : 128 (0 ... 255, 128)

Sharpness : 128 (0 ... 255, 128)

Orientation : ☒ Vertical flip ☒ Horizontal mirror

Rotation : ☒ None ☐ Left(-90 degrees) ☐ Right(+90 degrees)
 Note: Image rotation cannot be used while VCA is in use. [Go to VCA Configuration](#)

Exposure

Exposure mode : ☒ Auto
 Minimum shutter speed : 1 / (1/50 ... 1/5000 sec)

☐ Manual
 Shutter speed : 1 / (1/2 ... 1/5000 sec)

☐ Flickerless
☒ 50Hz ☐ 60Hz

Maximum AGC : (0 ... 100)

Exposure adjustment : EV

Back light compensation : ☐ On ☒ Off

Digital slow shutter :

Smart IR : ☒ Auto ☐ Manual 128 (0 ... 255, 128)

Digital Wide Dynamic Range

☐ Enable

Day & Night

Day & Night mode : ☒ Auto ☐ Day ☐ Night

Day to Night level : 0 (0 ... 63, 0)

Night to Day level : 3 (1 ... 64, 3)

White Balance

White balance mode :

Red : 128 (0 ... 255)

Blue : 128 (0 ... 255)

Image Signal Processing

Dynamic 2D DNR : 15 (0 ... 15)

Friendly name

Users may provide friendly name (alias) to an individual camera in case when utilizing multiple channels and cameras. Using alias is recommended to distinguish the device where environment requires multiple image feedbacks with multiple monitoring devices.

Video Appearance

Brightness, contrast, saturation, sharpness and orientation are adjusted.

Brightness: The range is from 0 to 255, the default is 128.

Contrast: The range is from 0 to 255, the default is 128.

Saturation: The range is from 0 to 255, the default is 128.

Sharpness: The range is from 0 to 255, the default is 128.

Orientation: Select vertical flip or horizontal mirror an object.

Vertical Flip

This enables an image to be rotated vertically.

Horizontal mirror

This enables an image to be mirrored.



Sharpness is affected by installation environment. Here in the web menu's "range" definition is operating range, therefore configuring the right value for each camera is necessary.

Rotation

Rotation function is a corridor mode which rotates the video image 90 degrees in an area that is more vertical than horizontal in shape such as staircase, hallways, aisles to view a vertically oriented video stream. The options are 'Normal', 'Left(-90°)', and 'Right(+90°)'.



Image rotation using high resolution (1080p) may affect the frame rate.

Exposure control

Selecting the right exposure control mode depends on the installation site's environment. 3 modes are available;

- Auto : This mode tries to adjust the best shutter speed automatically to get the proper scene depending on the light environment from the minimum shutter speed.
- Manual : If the auto mode doesn't work properly or you want to fix the shutter speed, you may select this mode and set the shutter speed manually.
- Flickerless : Under the florescent light, the flicker may happen and select proper light frequency to compensate the light flickering.

Exposure adjustment

Correct exposure value should be selected from the list box to adjust the target brightness for the automatic exposure setting. The high value makes the image brighter, and the low value makes the image darker. Select the value as follows: +1.0, +0.6, +0.3, 0, -0.3, -0.6, -1.0(EV)

Backlight compensation (BLC) allows the camera to adjust the exposure of the entire image to properly expose the subject in the foreground based on the selected light measurement area when a bright light source is behind the subject of interest.

Digital slow shutter allows to get the proper exposure in low light condition even the frame rate may be dropped.

Smart IR enables to automatically adjust the IR power output depending on the surrounding light conditions. It also eliminates overexposure if a subject is detected closer to the camera.

- Auto: This mode adjusts the pre-defined levels of the IR power output. The pre-defined range is from 0 to 255.
- Manual: A user determines an appropriate level of the IR power output and adjusts it manually.



Smart IR feature is available only for the specific camera models equipped with IR LEDs.

Digital Wide Dynamic Range (DWDR)

This ensures image clarity in strongly lit and contrasting places.



Auto Focus Mode (Note: Auto focus mode is for speed PTZ cameras only.)

Autofocus allows the lens to remain in focus during tele, wide and direction movement operating automatically. There are three modes.

- Auto: this mode enables to focus automatically.
- Semi-auto: This mode allows adjusting focus once automatically in the below cases.
 - PAN/TILT movement
 - Zoom In/Out
 - Change Preset position
 - The PTZ position change by Autorun
- Manual: This mode allows user to change the focus with Focus Near/Far control.

Day & Night

Three different day/night modes are supported: Auto, Day, and Night. Select the desired mode based on the installation environment. Default value is Auto. Threshold value for Day to Night and Night to Day can be controlled when the Auto mode is set. Please note that Night to Day level should always be set higher than Day to Night level.

- Day to Night level: This has range of 0 ~ 63. (Default value is 0)
- Night to Day level: This has range of 1 ~ 64. (Default value is 3)

White Balance

Set of different white balance modes are available in drop down list, and Red and Blue hues can be adjusted.

- atw1: Automatically adjust white balance in image
- atw2: Automatically adjust white balance but with different range compare to atw1
- push: Applies adjusted white balance to image.
- manual: users can manually adjust red and blue hues

Image Signal Processing

When noise filter value is 0, the noise filter is off. The noise suppression is performed to the maximum when the value set is 15. The video quality will suffer when the value is set to the highest. The range is from 0 to 15, and the default is 0.



Analog output

(Note: Analog Output selection is available for speed PTZ cameras only.)

This selects the video format on the video output port.

Using the Preview button

Preview window appears with current setup visuals. When settings are applied, the preview window displays the user's latest modification.



5.2.2. Repositioning

Note: This part is for the repositionable dome cameras only.

To change the repositioning setting, go to **Setup > Video & Audio > Repositioning**

Setup > Video & Audio > Repositioning

Movement

(Zoom) Wide <<< << < > >> >>> Tele
 (Focus) Near <<< << < > >> >>> Far


One Click Focus

Pre Position

PTZ Preset:
 Name:
 Go Set Clear

Calibration

Pan/Tilt:
 Zoom/Focus:



Status






Cycle(Pan) : 8
 Cycle(Tilt) : 26

Schedule

Num	Day	Time	Pre position list
1.	<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	00:00	<input type="text"/>
2.	<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	00:00	<input type="text"/>
3.	<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	00:00	<input type="text"/>
4.	<input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun	00:00	<input type="text"/>

SAVE

Movement

- **Arrow buttons:** The camera can move to 4 directions; up, down, left, and right. The camera moves to the desired position while the button is clicked and held. Stop button  can be used while using zoom/focus settings or auto focus settings.
- **Zoom/Focus buttons:** 3 levels of movements are available for wide, tele, near and far movements. Clicking the buttons   move the lens more extensively than the buttons  .
- **One Click Focus:** Clicking this button automatically sets the lens focus.

Pre Position

- **Drop-down list:** Stored position list (available to store maximum 16).
- **Name:** Text box to enter name of appointed position.
- **Go:** Clicking **Go** moves the camera to the selected position after selecting one from the drop-down list
- **Set:** Saving the current camera position.
- **Clear:** Removing the current camera position.

Calibration

- **Pan/Tilt:** Move Pan and Tilt to default location.
- **Zoom/Focus:** Move zoom and focus to default location

Status

- **Cycle(Pan)/ Cycle(Tilt):** Pan and Tilt cycle status. Numbers indicate pan and tilt motor's number of revolutions.

Schedule

- Set up to 4 schedules of prepositions to focus on during desired date and time periods.

5.2.3. Zoom/Focus

Note: Zoom/Focus is for motorized lens cameras only.

To change the Zoom/Focus setting, go to **Setup > Video & Audio > Zoom/Focus**



- **Zoom/Focus:** Three levels of movements are available as wide, tele, near and far. Clicking the buttons move the lens more extensively than the buttons .
- **One Click Focus:** Clicking this button automatically sets the lens focus.
- **Calibrate (Zoom/Focus):** This function rectifies misalignment by rebooting to a zero point and then aligning to a correct position.

5.2.4. Burnt-in Text

To change the burnt-in text setting, go to **Setup > Video & Audio > Burnt-in Text**.

The setting of the Burnt-in Text is applied to first stream, second stream (if the device supports) and snapshot modes identically. To add burnt-in text, check on the box of **Enable B-I Text** after the setting and click **Apply**

What is Burnt-in Text?

Burnt-in Texts 'burns' information into streaming visuals before it gets compressed, thus prohibiting manipulation or alteration of the events' time. It allows the file to become reliable evidence as it discourages intentional manipulation of the date and time for an alibi.

Text configuration

Select information (Date, time and name) to include as the burnt-in text in image. To include a specific name or info, type the desired text on the name text box. To display millisecond (time), check the 'Enable milliseconds for time display' checkbox.

Text position

Set where the burnt-in text will be positioned in image. Predefined locations are provided as well as manual position options.



Note

It is recommended to use normalized X, Y instead of predefined positions (left-top, left-bottom, right-top, right-bottom) for the burnt-in text positions. Selecting same predefined positions on all three categories may cause overlapping texts, depending on image resolution or the position of each text. Utilizing PREVIEW is highly encouraged to review the selected positions of those burnt-in texts.

Preview

Preview button allows to view the visual with applied settings (need to press APPLY to view).

5.2.5. Encoder profile

To create pre-defined encoder profiles, go to **Setup > Video & Audio > Encoder Profile**.

Setup > Video & Audio > Encoder Profile

Name	Description	Stream1	Stream2
default		h264-1280x720	-

Information

Profile name : default

Description :

First stream : h264, 1280x720@30FPS, GOP-30, Profile-high, vbr, Image quality-highest

Second stream : -

Snapshot : 800x450@2FPS, Quality-70

Audio : Input Enable-no, InputVol-128, g711, Freq-16000, Output Enable-no, OutputVol-128, Port-6000

The expected codec usage : 45%+50%(VCA)

You can check all the profiles on the **Encoder Profile** page, and add, copy, modify, or remove a profile.

Stream Profile List: It shows a list of defined encoder profiles. Clicking a highlighted profile shows the detailed information about the profile. Click **Add** to create a new profile, and click **Copy** to easily create a duplicated profile. If you want to modify a currently existing profile, click **Modify**, and make changes on the existing setting. Clicking **Remove** gets rid of the highlighted profile on the list, but the default profile cannot be removed.

If you click either one of *Add*, *Copy*, or *Modify* button, the profile configuration page appears as shown below. On this page, users can configure the settings for each stream, snapshot and audio separately.

Modify to Profile

Basic Configuration

Profile name : (Max 32 characters)

Description : (Max 100 characters)

First Stream **Second Stream** **Snapshot** **Audio**

Stream

☒ Enable streaming

Video codec :

Resolution :

Max. FPS : (1 ... 30 fps)

GOP : (1 ... 30)

Profile identification :

Bit rate control

☒ Variable bitrate (VBR)

Image quality :

☐ Constant bitrate (CBR)

Target bitrate : (128 ... 6000 kbps)

The expected codec usage : **45%+50%(VCA)**

Show profile list Apply Cancel

Users can configure streams, snapshot and audio settings.

Click **APPLY** to apply all changes to the current profile, or click **Cancel** to go back to the last saved profile.

Stream Configuration (First Stream and Second Stream)

The expected codec usage

The expected codec usage is calculated automatically according to your configuration parameters. Do not exceed the usage over 100%.

* The expected codec usage does not appear for encoders.

Enable streaming

Check the 'Enable streaming' box to enable streaming on the selected stream. Always keep unused streams disabled.

Video codec

Select the video codec from MJPEG and H.264.

Resolution

The supported resolution in pixels for the current stream profile is listed on the drop down box. Select the desired resolution. For encoders, refer to **APPENDIX[A]:ENCODERS**.

Cameras
1920x1080
1280x720
1120x630
960x540
800x450
640x360
480x270
320x180

Maximum FPS

Define the desired frame rate per second.

The max frame rate is 30 for cameras. For encoders, refer to **APPENDIX[A]:ENCODERS**.

GOP

This parameter defines the length of the group of pictures. If this value is set to 1, the video stream will only have one I-frame. Keep this value high to minimize bandwidth. The max GOP is 30. For encoders, refer to **APPENDIX[A]:ENCODERS**.

Profile Identification

This option allows users to select between three H.264 different profiles. This directly affects the quality of the video due to the amount of compression applied. *Baseline* profile provides maximum compression to the video. *High* profile gives the best quality. Selecting the *Main* profile is balances between the other two.

Variable Bit Rate (VBR)

VBR allows a higher bitrate (and therefore more storage space) to be allocated to the more complex segments of media files while less space is allocated to less complex segments. It is used when the system has enough storage and a high quality image is required. Image quality can be configured as highest, high, normal, low and lowest.

Constant Bit Rate (CBR)

CBR mode maintains the defined bitrate level all the time.

Snapshot Configuration

Once 'Enable snapshot' is ticked, it will not stop until the checkbox is unchecked and 'Apply' is pressed.

Enable snapshot

Tick **Enable snapshot** to enable snapshot on the selected stream.

Resolution

The supported resolution for the product is listed on the drop down box. Select the desired resolution. If one of the video streams is set to 1080P, other video stream resolution cannot be used as greater than 1088 horizontal.

Maximum FPS

Enter how many snapshot files you want to send per a second. The maximum value is 5.

JPEG quality

Enter the JPEG quality. The range is from 0 to 100 and '100' means the best quality.

Audio Configuration

Enable audio

Select the **Enable** check box for the microphone or speaker to be enabled.

Audio Input

Volume: Enter the audio input volume. The available range is from 0 to 225.

Codec: G.711 is supported for the audio codec.

Sampling Frequency: The sampling frequency is selectable between 8kHz and 16kHz.

Audio Output

Volume: Enter the audio output volume. The available range is from 0 to 255.

TCP/IP listen port: Set the port for listening to the audio received from the camera. The default is 6000 and the range is from 1 to 65535.



Note

After the setting, make sure to click **OK** to save changes.

5.2.6. Stream

To configure predefined stream profile, go to **Setup > Video&Audio > Stream**.

Setup > Video & Audio > Stream

First Stream | Second Stream | Snapshot | Audio

Stream

☒ Enable streaming

Video codec : H.264

Resolution : 1920x1080

Max. FPS : 15 (1 ... 15 fps)

GOP : 15 (1 ... 15)

Profile identification : High

Bit rate control

☒ Variable bitrate (VBR)
Image quality : Highest

☐ Constant bitrate (CBR)
Target bitrate : 5120 (128 ... 6000 kbps)

The expected codec usage : 50% + 50%(VCA) Show profile list Apply Cancel

Load profile settings

Go to Profile Configuration

Stream Profile List

Name	Description	Stream1	Stream2
default		h264-1280x720	-

This part has the same structure as in **Setup > Encoder Profile**, and actual stream is applied on this page.

Clicking **Show profile list** will display all the profiles that you had previously added in **5.2.5 Encoder profile** .*

1. Highlight a profile that you wish to configure from the list, and click **Load profile settings** to bring up its setting below the **Stream** panel.
2. Click **Apply** to implement all changes to the currently loaded profile. Or, click **Cancel** to reverse all the changes made on this page to the latest-applied values.

*Different values for streaming can be applied by directly changing the values below the **Stream** panel other than setting profiles thru **Encoder Profile**.

5.2.7. Privacy Mask

To set up the privacy mask, go to **Setup > Video & Audio > Privacy Mask**.

How to configure privacy mask zones



except repositioning camera

1. Check “**Show**” button of the desired privacy zone ID on the information panel.
2. On the display window, click the left mouse button and drag the mouse diagonally until the desired size is made.
3. Click the “**Save**” button to save changes.

Setup > Video & Audio > Privacy Mask

Privacy Mask

Movement

Zoom

Focus

Speed

20 (1 ... 100)

Information

Center:
 356.880, 24.940
 Range:
 60.000, 35.000

Information

Use	Zone ID	Name	Position (P:0...360, T:-25...70, W:1...40, H:1...30)		
<input type="checkbox"/>	01	zone	P: 0 T: 0 W: 1 H: 1	GO	SAVE
<input checked="" type="checkbox"/>	02	Light Fixture 2	P: 352 T: 14 W: 5 H: 6	GO	SAVE
<input type="checkbox"/>	03	zone	P: 0 T: 0 W: 1 H: 1	GO	SAVE
<input checked="" type="checkbox"/>	04	Light Fixture 3	P: 0 T: 0 W: 1 H: 1	GO	SAVE
<input checked="" type="checkbox"/>	05	Light Fixture 1	P: 354 T: 24.2 W: 5 H: 14	GO	SAVE
<input type="checkbox"/>	06	zone	P: 0 T: 0 W: 10 H: 10	GO	SAVE
<input type="checkbox"/>	07	zone	P: 0 T: 0 W: 10 H: 10	GO	SAVE
<input type="checkbox"/>	08	zone	P: 0 T: 0 W: 10 H: 10	GO	SAVE

repositioning camera

1. Move to the area where privacy mask is needed by clicking the arrow buttons under the Movement tab.
2. Tick the checkbox of a desired **Zone ID**, type an easily recognizable name under the name tab, and set the mask position and size by entering appropriate values under the Position tab based on Center and Range information.
3. Click **SAVE** to apply the privacy mask on the screen.
4. Adjust and resize the privacy mask to completely cover the object you targeted by changing the values you had entered. If you want to see each privacy mask you already set in different areas on the screen, click **GO**.

What are P,T,W, and H?

P means Pan, indicating the camera's panning position. The value is from 0 to 360.

T means Tilt, indicating the camera's tilting position. The value is from -25 to 70.

W means Width, indicating the width of privacy mask. The value can be from 1 to 40.

H means Height, indicating the height of privacy mask. The value can be from 1 to 30.

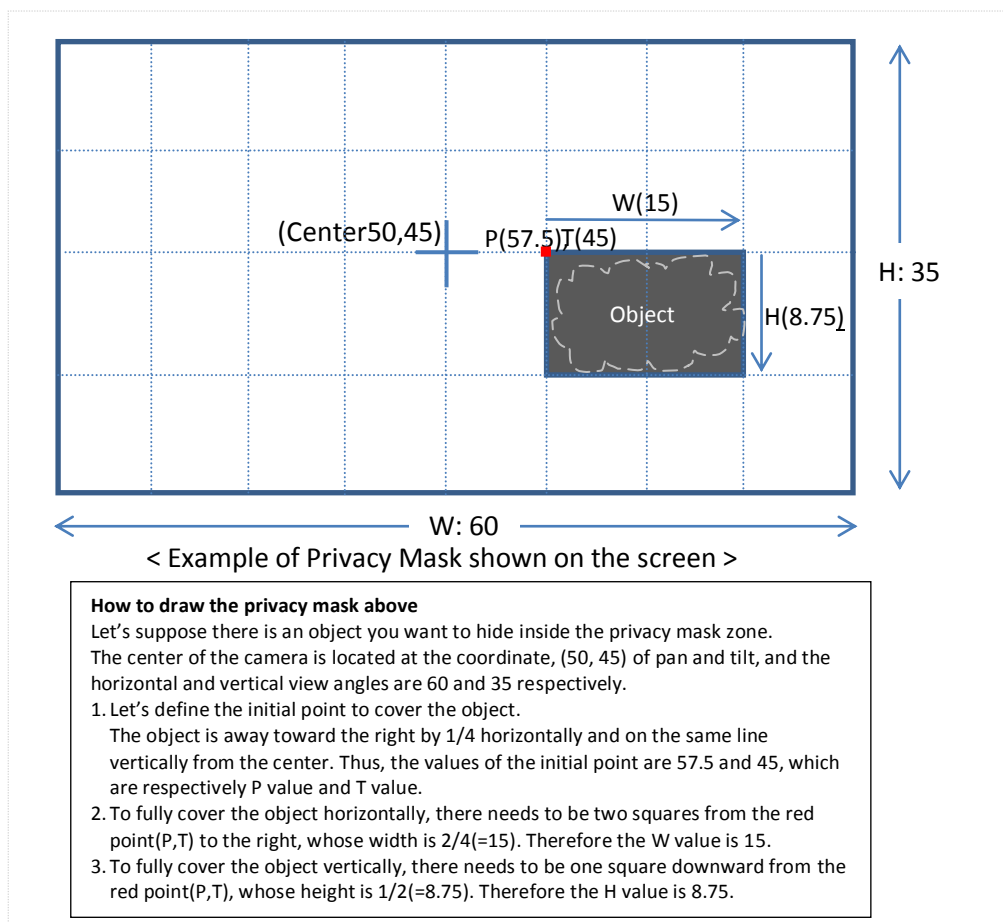
***The sum of the T value and the H value should be less than or equal to 70.**

What is Center ?

It is the coordinate of Pan and Tilt, whose location is center of the video on the screen.

What is Range?

The range indicates vertical and horizontal view angle of the video on the screen.



Note

The speed dome cameras have the range limit in tilting. Thus, the field available for privacy mask is also limited.

5.3. EVENT CONFIGURATION

Event Configurations allow users to set up the notification of occurred events. The event sources such as DI and motion detection can publish event messages when an event is generated. The available event subscribers include DO, email, FTP, and HTTP.



Note

Before you create an event profile, go to the desired subscriber configuration page (E-Mail Recipient, FTP Notification, or HTTP Notification), and complete the required server settings.

5.3.1. Event Rules

After the event subscriber configuration, you can make several event profiles with different options of event source and notification. Go to **Setup > Event Configuration > Event Rules** to manage the event profile. On this page, you can configure the event source type and specify how to send notification message when an event trigger is activated.

Setup > Event Configuration > Event Rules

Configuration
☒ Enable Event Rules
Apply Cancel

Event Rule List

Use	Name	Description
yes	VCA	VCA for NVRtest
yes	MD	

Add... Copy... Modify... Remove

Information

Enable profile :	yes
Name :	VCA
Description :	VCA for NVRtest
Event sources :	Sensor(DI)-no, Motion detection-no, VCA=yes, Network setting changed-no, Fan/Heater operation changed-no
Event action :	Active alarm(DO)-no, Recording=yes, Duration=0, Send e-mail notification-no, Upload notification to FTP-no, Send HTTP notification-no, Send TCP notification-no, Send notification via TCP event server=yes, Send multicast notification-no

You can check the defined profile list on the main page, and add, copy, modify or remove an event rule.

- ① Tick the checkbox of **Enable event rules** under **Configuration** tab, and click apply to begin creating event rules.
- ② Click **Add** to create an event rule, and select desired **Event Sources** when a pop up window of **Add to Event Rule List** appears.
- ③ Click **Event Action** tab to select desired **Event Actions**.
- ④ **Name** the event rule on the **Configuration** section, and tick **Enable Rule** if you want to use the event rule, and then click **OK**.
- ⑤ Clicking on an event rule in **Event Rule List** will display the detailed information about the highlighted event rule.
 If you want to copy a profile of an existing event rule, highlight the desired event rule, and click **Copy**. Copying an event profile allows you to easily create multiple profiles with the same configuration. Clicking **Modify** enables you to modify the profile of the highlighted event rule. Clicking **Remove** will get rid of the highlighted event rule from **Event Rule List**.

* Please see the following pages for the detail about the event sources and event actions.

Event Source Configuration



The supported event source may be different depending on the hardware/software specification of each model.

The event sources can be categorized into three different groups for their mutually exclusive operations. When any source from each group is enabled, all the other sources of the other group are disabled.

1st group

- **Sensor (DI)**

Select **Sensor(DI1)** to enable DI as the event source. There are three modes:

- Active: Selecting **Active** enables detection of digital input.
- Inactive: Selecting **Inactive** enables detection of the ending moment of digital input.
- Both: combination of Active and Inactive

There is a hyperlink to access the Sensor/Alarm configuration page.

- **PIR**

Select **PIR** to enable PIR sensor as the event source. There is a hyperlink to access the PIR configuration page.

- **Motion detection**

Select **motion detection** to enable motion detection as the event source. Selecting the check box displays the motion interval setting as shown on the screenshot above. Set the time for motion interval from 0 to 3600 seconds to avoid continuous triggered MD events. Then, select the motion detection zones to use as the event source from the list. (Refer to **5.3.2. Motion Detection** to create the motion detection zones prior to setting motion detection as the event source.) There is also a hyperlink to access the motion detection configuration page.

- **VCA source**

Select **VCA source** if you want a certain VCA source as one of the event sources. Available options may differ by purchased analysis options. There is also a hyperlink to access the VCA configuration page

Here is the explanation on some major VCA sources.

- Configuration: When VCA configuration is changed
- Tamper: When there is camera tampering.
- Trigger mode: This mode enables users to set the moments that VCA defines a rule as a trigger.
 - Rising edge: The moment a defined rule begins
 - Falling edge: The moment a defined rule ends
 - Both: combination of Rising edge and Falling edge

2nd group

- **Video loss/detect**

Select the checkbox of **Video loss/detect** to enable video status detection as the event source.

- **Network setting changed**

This option allows users to receive events when network setting is changed.

3rd group

- **Fan/Heater operation changed**

This option allows users to receive events when the operation of fan and heater is changed.

Event Action Configuration



The supported event action may be different depending on the hardware/software specification of each model.

Configuration

☒ Enable Rules

Name : VCA

Description : VCA for NVRtest

Event Sources | **Event Action**

When Triggered

☐ Active alarm(DO) [Go to DI/DO Configuration](#)

☒ Recording [Go to Storage Configuration](#)

Pre interval : 3 (0 ... 5 sec, 3)

Post interval : 11 (0 ... 60 sec, 10)

☐ Send e-mail notification [Go to E-Mail Recipient Configuration](#)

☐ Upload notification to FTP [Go to FTP Notification Configuration](#)

☐ Send HTTP Notification [Go to HTTP Notification Configuration](#)

☐ Send TCP notification [Go to TCP Notification Configuration](#)

☒ Send notification via TCP event server [Go to TCP Server Configuration](#)

☐ Send multicast notification [Go to Multicast Notification Configuration](#)

OK Cancel

Active Alarm (DO)

Select the check box to activate the DO for the event publisher. The number of active alarm (DO) checkboxes varies depending on each device.

Specify the alarm duration. **Duration** indicates how long the DO works. For example, if you input '0,' a DO device keeps working until you turn it off manually. If you input '10,' a DO device will work for 10 seconds and finish the operation.

Recording

Select the check box to record the video and audio data to the preconfigured FTP or SD memory when the event is triggered. To use this event action, the recording format should be at **Storage > Recording > Configuration**. The recording format should be **Event** to enable recording. **Pre interval** and **Post interval** specifies the recording duration before and after the event occurs.

Save event log

It is automatically ticked as an event action in case **Network setting changed** or **Fan/Heater operation changed** is selected as an event source.

Send E-mail notification

Select the check box to send E-mail to designated recipients. To attach a snapshot image, select **Attach a snapshot**. Up to three snapshots taken before the triggered moment (defined as pre-image on the webpage) can be emailed while one snapshot at the triggered moment can be attached.

From the recipient list, select the recipient to send the notification. To create a new recipient that is not on the list, go to **Setup > Event Configuration > E-Mail Recipient** and create a new recipient information. Once the desired recipient is selected, write the subject for the email.

Upload notification to FTP

Select the check box to activate the FTP notification method. To attach a snapshot image, select the *Attach a snapshot* check box. From the FTP server list, select the FTP server to send the notification. To create a new FTP server that is not on the list, go to **Setup > Event Configuration > FTP Notification** and create a new FTP server information.

Send HTTP Notification

Select the check box to activate HTTP notification method. From the HTTP notification list, select the HTTP server to send the notification. To create a new HTTP server that is not on the list, go to **Setup > Event Configuration > HTTP Notification** and create a new HTTP server information.

Send TCP Notification

Select the check box to activate TCP notification method. To configure a new TCP server, go to **Setup > Event Configuration > TCP Notification** and configure TCP server information.

Send Notification via TCP event server

Select the check box to activate TCP event server notification method. To configure a new TCP server, go to **Setup > Event Configuration > TCP Server** and configure TCP server.

Send multicast notification

Select the check box to activate multicast notification, and go to **Setup > Event Configuration > Multicast Notification** to configure multicast notification.
Or, go to **5.3.8. Multicast notification** for the detail.

Active PTZ

Select the check box, and select the preset position to move to the specific preset position of PTZ camera. To configure a preset, go to **Live > Panel > PTZ > Pre Position**.



To attach a snapshot image on the configuration of E-mail Recipient or FTP notification, make sure the snapshot setting from **Setup > Video & Audio > Encoder Profile** has been enabled.

5.3.2. Motion Detection

To set up the zones and rules configuration required for the motion detection, go to **Setup > Event Configuration > Motion Detection**.

Setup > Event Configuration > Motion Detection

Motion



Information

Enable	Zone ID	Name	Description	Sensitivity	ObjectSize
<input checked="" type="checkbox"/>	01	zone	motion	30	10
<input checked="" type="checkbox"/>	02	zone	Zone2	30	10
<input type="checkbox"/>	03	zone		128	128
<input type="checkbox"/>	04	zone		128	128
<input type="checkbox"/>	05	zone		128	128
<input type="checkbox"/>	06	zone		128	128
<input type="checkbox"/>	07	zone		128	128
<input type="checkbox"/>	08	zone		128	128

Configuration

☒ Enable MD metadata

SAVE

How to configure the motion detection zones

1. On the Information panel, select **Enable** on a desired Zone ID. Then, a rectangle appears on the screen.
2. Relocate the rectangle or adjust the size with the left mouse button by dragging the mouse on top or on the edge of the rectangle. The rectangle is motion detection zone.
3. Provide a relevant name and description of the motion detection zone on its text box.
4. Adjust the value sensitivity and object size.
5. Uncheck **Enable** if you want to hide a motion detection zone.
6. Click **Save** to apply changes to the screen.

* Click checkbox of **Enable MD metadata**, and click **SAVE** to apply if you want to see which spot has a subject's movement on the screen.

What is Sensitivity?

Every motion detection zone is divided into multiple squares, which is called 'Macro blocks.' Each of macro blocks consists in groups of 16 x 16 pixels. The value of sensitivity means the sensitivity of each macro block. To configure the zone less sensitive than the factory default (128), set the number value higher; to configure the zone more sensitive than the factory default, set the number value lower.

What is Object size?

The object size value means the proportion of the macro blocks which has exceeded the configured sensitivity. If you want to configure the zone less sensitive than the factory default (128), set the number value higher; to configure the zone more sensitive than the factory default, set the number value lower.

5.3.3. E-mail recipient

To configure the email recipient list for event notification, go to **Setup > Event Configuration > E-Mail Recipient**.

Setup > Event Configuration > E-Mail Recipient

E-Mail Recipient List

Id	Name	Description
1	Alice	Site1

Add... Modify... Remove Go to SMTP (E-Mail) Configuration

Information

Name : Alice

Description : Site1

E-Mail address : site1event@camera.com

1. Clicking **Add** will bring up a pop-up window, **Add to E-Mail Recipient List** as shown below.

Modification of E-Mail Recipient

Name : Alice

Description : Site1

E-Mail address : site1event@camera.com

Send Test E-Mail OK Cancel

2. Create an E-mail recipient profile.

Name

Specify the e-mail recipient name.

Description

Input a brief description of the e-mail recipient to easily distinguish.

E-Mail Address

Enter the e-mail address of the e-mail recipient. If you use host name, a valid DNS server must be specified in TCP/IP network settings.

Send Test E-Mail

To test the entered e-mail address, click the *Send Test E-Mail* button. If the e-mail address is available, 'Send okay' message appears next to the test button.

3. If you want to modify an E-mail recipient's information, click **Modify**, and update the information. (Clicking an E-mail recipient under **E-Mail Recipient List** will display the detail

about the selected recipient profile.) If you want to remove an E-mail recipient from **E-Mail Recipient List**, click **Remove**, and click **OK** to apply the removal when a pop-up window appears to ask you to confirm the removal.

***Go to SMTP Configuration:** If you want to send test E-mail to the E-mail recipients, you need to configure the SMTP server information first. Go to **Setup > Network Configuration > SMTP(E-Mail)**, and complete the required settings. Refer to **5.4.7. SMTP** for more information.

**Note**

After the setting, make sure to click **OK** to save changes.

5.3.4. FTP Notification

To configure the FTP server for event notification, go to **Setup > Event Configuration > FTP Notification**.

Setup > Event Configuration > FTP Notification

Id	Name	Description
1	FTP001	FTP site1

Add... Modify... Remove

Information

Name : FTP001

Description : FTP site1

IP Address :

Port (1 ... 65535) : 21

Target Directory :

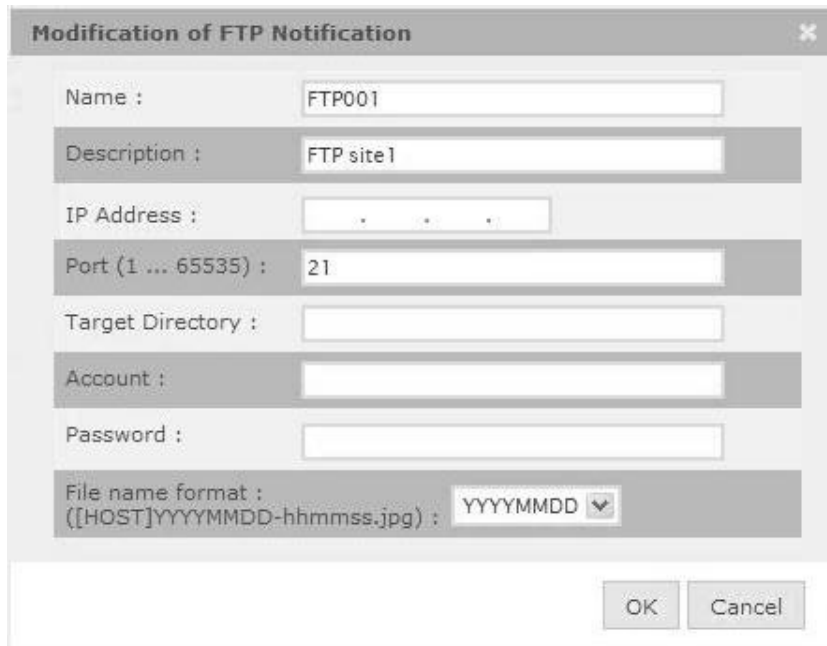
Account :

File name format : yyyyymmdd

You can check the defined FTP server list on the main page, and add, modify, or remove server information.

- **FTP Notification List:** It shows all the defined FTP server names.
- **Add:** Click this button to add FTP server information.
- **Modify:** Select an FTP server name, and click this button to modify the current information of the FTP server.
- **Remove:** Select an FTP server name, and click this button to remove from the list.
- **Information:** It displays the detailed information of the selected FTP server from the list.

Clicking either *Add* or *Modify* button will display the configuration page shown below.



The image shows a dialog box titled "Modification of FTP Notification". It contains several input fields and a dropdown menu. The fields are: Name (FTP001), Description (FTP site1), IP Address (a field with three dots), Port (21), Target Directory (empty), Account (empty), Password (empty), and File name format (a dropdown menu showing YYYYMMDD). At the bottom right are OK and Cancel buttons.

Name

Specify the FTP server name.

Description

Input a brief description of the server to easily distinguish.

Address

Enter the IP address of the FTP server.

Port

Enter the server port number. The default is 21.

Target directory

Enter the folder name where the created files will be placed. If the folder does not exist on the server, the specified folder name will be automatically created on the FTP server.

Account and password

Enter the login user name and password of the FTP server. The account and password information must be entered even for the anonymous FTP.

File name format

Select the desired date format.

**Note**

After the setting, make sure to click the OK button to save changes.

5.3.5. HTTP Notification

To configure the HTTP server for event notification, go to **Setup > Event Configuration > HTTP Notification**.

Setup > Event Configuration > HTTP Notification

Id	Name	Description
1	http1	site1

Add... Modify... Remove

Information

Name : http1

Description : site1

Address : 192.168.0.100

Port : 80

Account : root

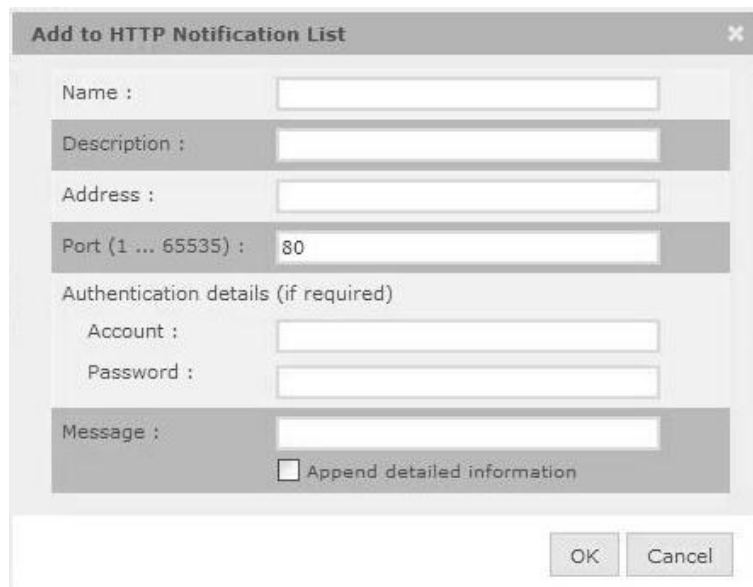
Message : test Site1

Enable option : no

You can check the defined HTTP server list on the main page, and add, modify, or remove server information.

- **HTTP Notification List:** It lists the defined HTTP server names.
- **Add:** Click this button to add HTTP server information.
- **Modify:** Select an HTTP server name, and click this button to modify the current information of the FTP server.
- **Remove:** Select an HTTP server name, and click this button to from the list.
- **Information:** It displays the detailed information of the selected HTTP server from the list.

Clicking either *Add* or *Modify* button will display the configuration page shown below.

**Name**

Specify the HTTP server name.

Description

Input a brief description of the server to easily distinguish.

Address

Enter the IP address of the HTTP server.

Port

Enter the server port number. The default is 80.

Account and password

Enter the login user name and password of the HTTP server. If you want to skip the login authentication process, leave the text boxes blank.

Message

Enter the message that you want to send with. Enabling the 'Append detailed information' will add event details in message. Please note that this requires '/' at the beginning of the message. For example, **YES**("/ABABAB"), **NO**("ABABAB")

**Note**

After the setting, make sure to click the OK button to save changes.

5.3.6. TCP Notification

To configure the TCP push for event notification, go to **Setup > Event Configuration > TCP Push Notification**.

Setup > Event Configuration > TCP Notification

Configuration

IP Address: [. . .]

Port : [] (1 ... 65535)

Connect Timeout : 2 [] (1 ... 300 sec)

Send Timeout : 2 [] (1 ... 300 sec)

Alive Type : ☐ Once ☐ Unlimited ☒ Timeout

Alive Time : 2 [] (1 ... 86400 sec)

Apply Cancel

IP Address, port

Type the configuration of TCP server.

Connect Timeout

TCP push tries to connect to TCP server during the setting time, but if connection is not made during the setting time, TCP push will stop to try to connect.

Send Timeout

Holding time for data transmission when event occurs.

Alive Type

You can configure the condition of connection and the default value is *Timeout*.

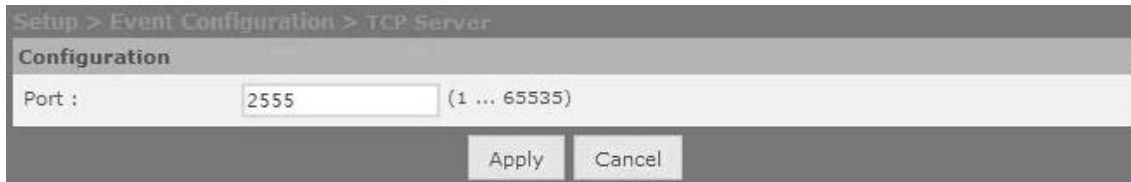
- **Once:** Only one connection is made for each event. There is no check that the connection is succeeded or not.
- **Unlimited:** The connection continues for data transmission whether event occurs or not.
- **Timeout:** After the last data transmission if there is no event for setting time of *alive time* the connection will be disconnected.

Alive Time

When *alive type* is configured as *Timeout*, the connection will be continued for *alive time*.

5.3.7. TCP Server

To configure the TCP server, go to **Setup > Event Configuration > TCP Server**. You can use TCP server to get the event notification from the device and send them to the client application.

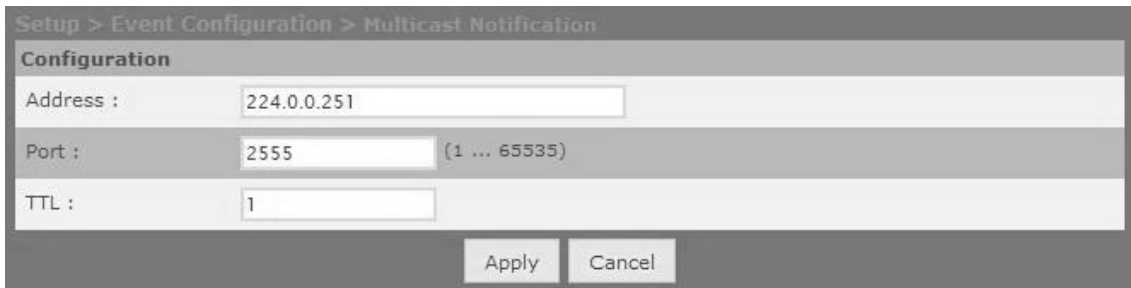


Port

Type the utilized port number to deliver the event message program

5.3.8. Multicast Notification

To configure the multicast server, go to **Setup > Event Configuration > Multicast Notification**. You can use Multicast server to get the event notification from the device and send them to the client application.



Type Address, port, and TTL according to your system setting. Factory default is 2555.

5.3.9. Heart beat

The camera sends the event repeatedly with the specific interval for the client to check the camera alive.



5.4. Network Configuration

5.4.1. TCP/IP(DHCP, Static IP, DNS setting)

To change the TCP/IP setting, go to **Setup > Basic Configuration > TCP/IP**.

IP Address Configuration

IP Configuration by DHCP

If you want to get your IP from DHCP server automatically, check this option and click the Apply button. When the dialog box appears on the screen, click the *OK* button.

Use the static IP address

If you want to use your device with a static IP, select '*Use the following IP address*' and input the following information:

- **IP address:** The IP address of your device. The test button shows if the typed IP address is occupied or not. If the typed address is available, "Okay" appears next to the Test button. If the typed address has been taken already, "Fail" appears next to the button.
- **Subnet mask:** The address of subnet mask of your device.
- **Gateway address:** The gateway address of your device.
- **Broadcast address:** It is automatically fixed by the subnet mask and IP address of your own. For example, if you use B class (255.255.0.0) of mask, the broadcast address will be 192.168.255.255.

DNS Configuration

Type the IP address of DNS server you use.

Link-Local Address

This is a built-in function that assigns the device an additional IP address, which can be used to access the unit from other hosts on the same segment of the local network. An IP address is automatically assigned when the camera boots up.

The camera can have both a Link-Local IP and a static/DHCP-supplied IP address at the same time. The IP address block is from 169.254.1.0 to 16.254.254.255.

To change the IP address, click **Renew**.

5.4.2. Web Server

To change the HTTP server setting, go to **Setup > Network Configuration > HTTP**.



The default value of web server is set to HTTP. To change its setting from HTTP to HTTPS, select HTTPS from the menu. It is recommended if enhanced security is required for accessing the web page. The data transmitted by HTTPS is encrypted by SSL to strengthen the security.

What is SSL?

SSL is the abbreviation of Secure Socket Layer. SSL protects web server and makes it easy for users to trust the contents. When HTTPS is being utilized to communicate with a server, the SSL certificate is required for the web server and the certificate enables encryption of video and audio data during online transactions. OpenSSL is one of the data security protocols for Linux system, which is used for the product.

Setting the port number of web server

To communicate with server by HTTP or HTTPS with TCP, the port number should be in between 1 and 65535. The default value is 80.

Redirecting HTTP to HTTPS

Even when a user tries to access the server with http, it is possible to enable the server to be redirected to HTTPS. In this case, do not set the value '80' as the port number since it may cause a conflict with HTTP port.

Authentication Type

When accessing the page which requires authority, the web browser asks ID and password and then transfers them to the camera by the methods below.

Basic: It uses simple way of encryption of ID and Password with clear text

Digest: It uses more enhanced way of encryption.

5.4.3. NTP Server

To change the NTP server setting, go to **Setup > Network Configuration > NTP**.



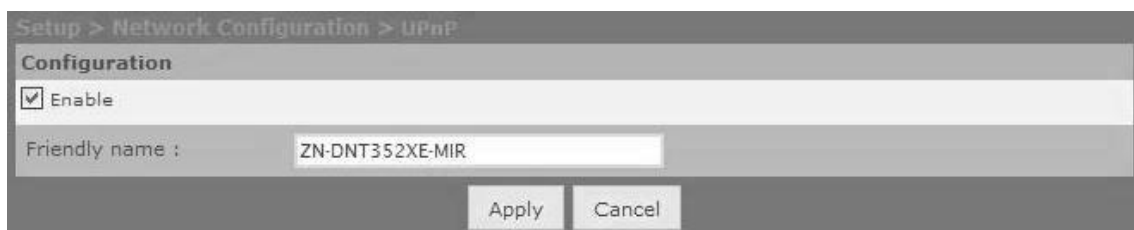
The screenshot shows the 'Setup > Network Configuration > NTP(SNTP)' page. It features a section titled 'NTP Server Lists' with four rows, each containing a label (NTP Server 1 through 4) and a text input field. The input fields contain the following values: 'time.windows.com', 'clock.isc.org', 'ntp.shoa.cl', and 'time.bora.net'. At the bottom right of the form are 'Apply' and 'Cancel' buttons.

NTP Server Lists

Users can set up to four NTP servers. To enable the NTP servers, DNS server setting must be completed from **Setup > Network Configuration > TCP/IP**.

5.4.4. UPnP

To change the Universal Plug & Play configuration, go to **Setup > Network configuration > UPnP**.



The screenshot shows the 'Setup > Network Configuration > UPnP' page. It features a section titled 'Configuration' with a checked 'Enable' checkbox. Below this is a 'Friendly name' label followed by a text input field containing 'ZN-DNT352XE-MIR'. At the bottom right of the form are 'Apply' and 'Cancel' buttons.

UPnP allows IP devices to connect seamlessly, and simplify the implementation of network in remote PC environments. On this page, users can enable or disable UPnP by clicking the Enable check box and apply the desired name (friendly name).

5.4.5. RTSP/RTP (multicast or unicast)

For the RTSP/RTP setting, go to **Setup > Network Configuration > RTSP/RTP**.

Setup > Network Configuration > RTSP/RTP

RTSP Configuration

Port : (1 ... 65535)

☐ Enable RTSP Authentication

Authentication Type :

Privilege :

Restriction of Stream Bandwidth

Bandwidth : (0 ... 30 Mbps) ☒ Automatic

First Stream **Second Stream** — Select the correct streaming tab.

Unicast

☒ Enable stream

Session

Name :

☒ Enable audio stream

☒ Enable metadata

☒ Enable ONVIF metadata

☐ Enable QoS DSCP

Video DSCP : (0 ... 63)

Audio DSCP : (0 ... 63)

Meta DSCP : (0 ... 63)

ONVIF Meta DSCP : (0 ... 63)

Multicast

☐ Enable stream

☐ Enable always multicast

Video IP address : (Enter 0.0.0.0 for automatic configuration)

Video port : (1 ... 65535)

Audio IP address : (Enter 0.0.0.0 for automatic configuration)

Audio port : (1 ... 65535)

Meta IP address : (Enter 0.0.0.0 for automatic configuration)

Meta port : (1 ... 65535)

ONVIF Meta IP address : (Enter 0.0.0.0 for automatic configuration)

ONVIF Meta port : (1 ... 65535)

TTL :

Session

Name :

☒ Enable audio stream

☒ Enable metadata

☐ Enable ONVIF metadata

☐ Enable QoS DSCP

Video DSCP : (0 ... 63)

Audio DSCP : (0 ... 63)

Meta DSCP : (0 ... 63)

ONVIF Meta DSCP : (0 ... 63)

The product supports multicast and unicast for both stream channels. Click the appropriate stream tab and configure the RTP session as required by your network system.

RTSP Configuration

Set the port number for RTSP streaming.

RTSP Authentication option is available for those who have implemented the authentication process. It has two methods.

- Basic: It uses simple way of encryption of ID and Password with plain text.
- Digest: It uses more enhanced way of encryption.

RTSP Configuration for UNICAST

Session name

Type the appropriate session name. The allowed range for the session name is 64 characters with alphabets, Arabic numbers, and underscore bar(_).

Enable audio stream

Check this box to include the audio stream in addition to the video stream.

Enable Metadata

Check this box to add the metadata.

Enable Onvif Metadata

Check this box to include the Onvif metadata.

Enable QoS DSCP

By enabling the Quality of Service (QoS) feature, you can specify priority level of network traffic for video, audio, and metadata (motion detection and VCA). For each traffic type, determine the DSCP (Differentiated Services Codepoint) value, which represents a QoS class in the Differentiated Services (DiffServe) model. For the details about the DiffServ standard, refer to RFC2474 and RFC2475.

RTSP configuration for MULTICAST

IP Address

In order to receive the streaming data from the device, set the IP address of group which is used for PC to join. '0,0,0,0' is configured as a factory default and it enables router program to generate the available IP for the device automatically. If you want to use specific address, type the address in the blank.



Note

RTSP multicast is not allowed for streaming even if the address and the port information are known.

How does auto configuration of IP address work?

As the session name for each RTP session is defined already on the server, your PC can get the stream by the 'rtsp:// rtsp server ipaddress : port / rtp session name' without the manual decision of IP address on the webpage.

Port

Set the port number used for router to receive the streaming data from the product (No need for unicast). The range of the port numbers is from 1 to 65535. Be sure that there are specific port numbers that you cannot use as they are already assigned to other necessary protocols.

* Default port number for each stream for each data is pre-defined on the textbox of the webpage, but users can set the numbers within the port range.

TTL

Set the TTL value. If you set 1 for TTL, it means the packet will pass only in a subnet (No need for unicast).

What is TTL?

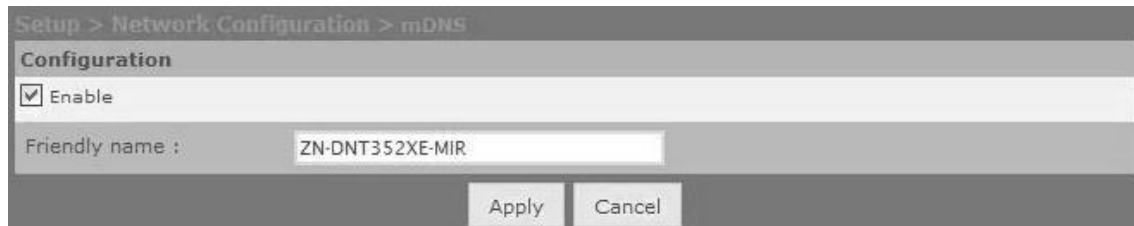
It's the abbreviation of Time to live. If data is sent out from the encoder via network and all of the packets are alive permanently on the network, it will cause the big network load. TTL helps reduce the network load by controlling the time of staying on network. For example, if you set the TTL as 50, the data will be deleted after passing by 50 routers.

**Note**

All other options are the same as the Unicast.

5.4.6. mDNS (Multicast DNS)

For the multicast DNS setting, go to **Setup > Network Configuration > mDNS**.

The screenshot shows a web interface for configuring mDNS. At the top, a breadcrumb trail reads "Setup > Network Configuration > mDNS". Below this is a section titled "Configuration". Inside this section, there is a checkbox labeled "Enable" which is checked. Below the checkbox is a text input field labeled "Friendly name :" containing the text "ZN-DNT352XE-MIR". At the bottom right of the configuration area are two buttons: "Apply" and "Cancel".

Configuration

If you check the box of 'Enable,' mDNS is activated. To use the IPAdminTool to identify the device, mDNS must be enabled. You can type a friendly name to be shown on the application program.

5.4.7. SMTP

To change the SMTP setting, go to **Setup > Network Configuration > SMTP(E-Mail)**.

Setup > Network Configuration > SMTP (E-Mail)

Email Sender

Sender's name :

From email address :

SMTP

Mail server address :

Mail server port : (1 ... 65535)

☐ Enable encrypted connection (SSL)

☐ Use authentication to log in this server

Apply Cancel

You can set the user's email account and server to apply this SMTP for the event subscriber or any other SMTP required purpose.

Configuring user information

Sender's name

Type the name of the sender; it can be either generic notification bot, name of the administrator, or the specific camera device, depends on its purpose.

Input range: 40 characters limit

From email address

Type the e-mail address of a sender.

Input range: 128 characters limit

Configuring server information

Mail server address

In order to send an email, the product needs the information of user's mail server. Type the host name or IP address of the mail server. If you use the host name, it requires the DNS registration. Check the DNS configuration from **Network Configuration > TCP/IP** and see if your DNS configuration is correct. If you use host name, a valid DNS server must be specified in TCP/IP network settings.

Input range: 128 characters limit

Mail server port

Type the mail server's port number within the range from 0 to 65535.

Enable encrypted connection (SSL)

If your email server requires encryption process of SSL and TLS, select the '**Enable encrypted connection (SSL)**' check box. TLS (Transport Layer Security) and SSL (Secure Sockets Layer)

algorithm can be required for the security of communication over networks. It depends on your email server and you should check out the communication protocol of SMTP server.

Use authentication to log in this server

If login information is mandatory before connecting to the server, check the box. Once the box is checked, the user name and password boxes appear for user to type.

User name input range: 128 characters limit

Password input range: 32 characters limit

5.4.8. DDNS (Dynamic DNS)

To change the Dynamic DNS setting, go to **Setup > Network Configuration > DDNS**.

Setup > Network Configuration > DDNS

Configuration

☐ Enable DDNS

DDNS Protocol Type

Type : DynDNS

DDNS Setting

Domain name :

Update time : 600 (1 ... 864000 sec, 10days)

Logon Information

User name :

Password :

Apply Cancel

Configuration

Enable or disable DDNS by selecting the check box.

DDNS Protocol Type

Select the desired protocol type. DynDNS is the only available option.

DDNS Setting

Type the domain name you want to use for the product and define the update time. The factory default is 600 seconds, and it enables the product to notify the DDNS of the current domain name in a given length of interval.

Logon Information

Type the user name and password of your DDNS account.



Note

8 asterisks cannot be used for the password.

5.4.9. SNMP

Simple Network Management Protocol (SNMP) is used in network management environment to monitor network-attached devices for their conditions. By retrieving the system information, it allows to manage network architecture, performance, device, and security. To enable SNMP, select the **Enable** check box. The encoder supports SNMP version 1 and 2.

Setup > Network Configuration > SNMP

Setup > Network Configuration > SNMP

Configuration

☐ Enable

SNMP Description

Location :

Contact :

Read Community :

Trap Setting

Trap Ver1.0 :

Trap Ver2.0 :

* One white space must be inserted between ip address and community at trap parameter. (192.168.0.1 public)

Apply Cancel

Configuration

Activate checkbox to enable the SNMP.

SNMP Description

- Location: Provide description of SNMP location
- Contact: Provide SNMP managing contact
- Read Community: input the community name, which is the authorized ID for reading SNMP data.

Trap Setting

Trap Setting provides information including changed DI, DO, or VCA to notify the manager. Select the SNMP Trap version to receive Trap event, and input the IP address and community on the text box.

5.4.10. Wireless LAN

Note: This part is for the camera with wi-fi module only.

To configure the wireless mode, the device needs to be connected to a wired network for the first time. **Setup > Network Configuration > Wireless Lan**

1. From the **USB Wireless AP List** tab, select the wireless network where the device will be located under. Provide the network key (password).

- From **Wireless network IP configuration** tab, select **Obtain an IP address via DHCP** or **Use the following IP address**.

Wireless AP List

Choose a wireless network Detail wireless AP information

Essid	Networks to Access	Quality

Mac address : -
 Bitrates : -
 Encryption : -
 Channel : -
 Authentication : -
 Network key :

Refresh Network List

Wireless network IP configuration

☒ Obtain an IP address via DHCP
 IP address : 0 . 0 . 0 . 0
 Subnet mask : 0 . 0 . 0 . 0
 Gateway address : 0 . 0 . 0 . 0

☐ Use the following IP address
 IP address : 0 . 0 . 0 . 0 Test
 Subnet mask : 0 . 0 . 0 . 0
 Gateway address : 0 . 0 . 0 . 0
 Primary DNS server : 0 . 0 . 0 . 0
 Secondary DNS server : 0 . 0 . 0 . 0

Link-Local Address

☒ Enable Auto-Configuration link-local address

IP address : 169 . 254 . 0 . 1
 Subnet mask : 255 . 255 . 0 . 0 Renew

Apply

- Use **Obtain an IP address via DHCP** if you want network to provide automatic address.
 - Use **Use the following IP address** and type specific addresses if you want the device to use specific designated address.
- Click Apply button and wait for system to correspond.
 - Disconnect the wired cable from the camera and wait for 10~15 seconds.
 - Use IPAdminTool* to identify the device or type URL in Windows Explorer to access.

Link-Local Address

This is a built-in function that assigns the device an additional IP address, which can be used to access the unit from other hosts on the same segment of the local network. An IP address is automatically assigned when the camera boots up.

The camera can have both a Link-Local IP and a static/DHCP-supplied IP address at the same time. The IP address block is from 169.254.1.0.to 16.254.254.255.

If you want to enable this function, tick the checkbox of **Enable Auto-Configuration link-local address**, and click **Renew** if you want to change the IP address.

**Caution**

* IPAdminTool needs to be started in a same network where wireless device is operating at.

5.5. VCA

For the details of VCA, refer to the VCA Manual.

5.6. Peripheral

5.6.1. Sensor/Alarm

To configure the digital input and output to control external devices such as sensors or alarms, go to **Setup > Peripheral > DI/DO**. Please refer to the product user guide to know more about the electrical characteristic of these ports.

Sensor(DI)

Resource type : ☒ Relay ☐ Voltage (max. 5V)

Trigger type : ☒ Normally open ☐ Normally closed

Interval between triggers
(0: trigger for every detection) : 5 (0 ... 600 sec)

Duration : 5 (0 ... 600 sec)

Apply Cancel

Alarm(DO)

Trigger

DO1 : ☐ On ☒ Off

Sensor (DI) Configuration

Resource type

Select the type of sensor module. It can be either voltage [maximum 5 volts] or relay.

Trigger type

Select between 'Normally open' and 'Normally closed'.

Interval between triggers

Set the detection time interval for event publishers. For example, if you input '0,' it generates events whenever DI is activated. When the value is set to '10,' then only 1 event will be triggered every 10 seconds even if multiple DI events are detected within 10 seconds.

Duration

This function is used when a DI is combined with other events. Setting duration virtually extends the interval to make the combined several events within the same time frame to trigger an alarm. The duration has a range of 0 ~ 600.

Trigger Alarm (DO)

Select "On" or "Off" for DO.

5.6.2. PIR

Note: This part is for the camera with passive infrared (PIR) sensor only.

Passive infrared sensor (PIR sensor) is a motion detector that senses object's radiating infrared (IR) light in its field of view.

Users can configure the sensor detection intervals by accessing **Setup > Peripheral > PIR**. The available intervals range from 0 to 600 seconds.

Setup > Peripheral > **PIR**

PIR

Interval : (0 ... 600 sec)

5.6.3. Serial Port

For the USRT setting, go to **Setup > Peripheral > Serial Port**. The Serial port setting page may not be available for all models.

Serial port (RS485)

Baud rate:

Data : ☐ 5bit ☐ 6bit ☐ 7bit ☒ 8bit

Parity : ☐ even ☐ odd ☒ none

Stop : ☒ 1bit ☐ 2bit

Flow control : ☒ none

Mode : ☒ PTZ ☐ SerialOverIP

SerialOverIP

Mode : ☒ UDP ☐ TCP client ☐ TCP server

IP address :

Port : (1 ... 65535)

Status :

Serial port setup

These settings are necessary when you want your serial device to be communicated with the encoder or IP camera. The default values are set for the serial device but you can change the values according to your own device requirement.

Serial port mode

- Serial Port (RS485): This is used when you want to control a PTZ camera or the serial device with the selected PTZ protocol embedded in a device. For detailed information on the embedded protocols, please see **5.7.3. Protocols**.
- SerialOverIP: Used to enable the communication for the devices connected to the serial ports of an encoder

SerialOverIP

This section is enabled only when you select SerialOverIP for the serial port mode.

Select the desired communication mode: UDP, TCP Client, or TCP Server. Once the mode has been selected, type the IP address of client and port number in the text boxes of SerialOverIP section.

If you select the TCP Client or TCP Server mode, you can set the time to end the connection automatically when there is no data coming from a client PC to the encoder in a specified time. This feature is provided to detect an abnormal closure of the socket or LAN cable disconnection. Input the desired time in the timeout text box.

The Status box indicates the connection status in the TCP Client or TCP Server mode. Refer to the following table and check how the message appears according to a connection status.

Status	Message for TCP Client	Message for TCP Server
Not Connected	Connecting	Disconnected
Connected	Connected	Connected



Note

The Timeout and Status option are available only in the TCP Client and TCP Server mode.



Note

The mode for the serial port is selected as SerialOverIP, the menus in Protocol<PTZ>Setup will be deactivated. Likewise, the menus in SerialOverIP are deactivated when the mode is selected as PTZ.

You can check the communication status from the client PC by using a related freeware. If you run the program and connect to a device via its IP address and port number, you can see that the data transferred from the port is received at the serial port.

5.7. PTZ settings

5.7.1. Touring

Setup > PTZ > Touring

Touring List

Preset Number	Interval
1	1
2	1
3	1
4	1
5	1

Touring Number : 1

Preset Number : 1

Interval : 1 (1 ... 80)

Add Remove Up Down

Apply Preview

Configure the Touring

1. Select the Touring number from 1 to 6 to define
2. Select the preset number to add.
3. Select the interval in second which stops at.
4. Click Add button
5. Repeat from step 2 to step 4 for adding the Preset.
6. Click the *Apply* button to save changes.

To reset Touring, select the desired Touring Number and then click Remove button.

5.7.2. Autorun

When there is no operation on PTZ during a specific period in minute, the predefined operation is called automatically.

5.7.3. Protocols

Protocols configuration allows users to set the PTZ protocols and the PTZ address.

ID	Protocol	Address	UART port
1	pelco-d.ptzs	1	1

ID : 1

PTZ protocol : pelco-d.ptzs

PTZ address : 1 (0 ... 65536)

UART port : 1

Available protocols are; TBT(T-Pro), American Dynamics, Bosch, CDC, Elbex, JVC, Kalatel(ascii), Panasonic (CS850), Pelco-d(probe), Pelco-d, Pelco-p, Convex, and Samsung

5.8. Maintenance

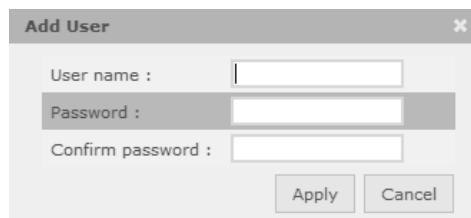
5.8.1. Users

To create/remove/modify a user group, go to **Setup > Basic Configuration > Users**.

How to add a user

To add a user for the webpage,

1. Go to **Setup > Basic Configuration > Users**.
2. Click **Add** below the User List.
3. When the pop-up window appears, type a user name and password.

A dialog box titled "Add User" with a close button (X) in the top right corner. It contains three input fields: "User name :", "Password :", and "Confirm password :". Below the input fields are two buttons: "Apply" and "Cancel".

Limitation on user name

The user name can consist of alphabets from "a" through "z", numbers from 0 to 9, and underscore symbol; the user name must begin with an alphabet letter.

Length: The length of user name must be between 3 and 32.

Character range: All upper or lower case letters, numbers from 0 to 9, and underscore

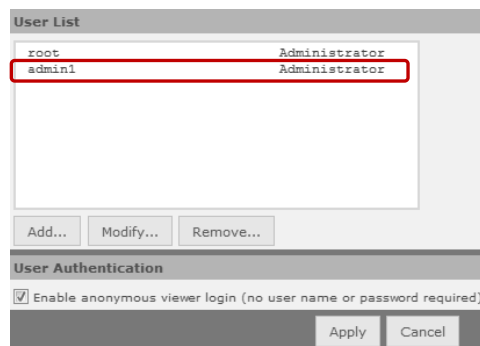
Limitation on password

A password can contain from 1 to 8 characters with a combination of alphabet and numbers.

Length: The length of password must be between 4 and 8.

Character range: All upper or lower case letters and numbers from 0 to 9

4. Click the OK button to save the changes.
5. Check if the user name is added to the list.

A dialog box titled "User List" with a close button (X) in the top right corner. It contains a table with two columns: "User name" and "User role". The table has two rows: "root" with role "Administrator" and "admin1" with role "Administrator". Below the table are three buttons: "Add...", "Modify...", and "Remove...". Below the buttons is a section titled "User Authentication" with a checkbox labeled "Enable anonymous viewer login (no user name or password required)". At the bottom are two buttons: "Apply" and "Cancel".

User Authentication

Enable or disable for anonymous viewer to connect *Live* page. When enabled, *Live* page can be displayed without entering user and password.

How to modify a user

To change your password or user name,

1. Go to **Setup > Basic Configuration > Users**.
2. On the User List, highlight user name.
3. Click the Modify button below the User List.
4. When the pop-up window appears, type the new password.
5. Re-type the same password again on the 'Confirm password' text box.
6. Click **OK** to save the changes.



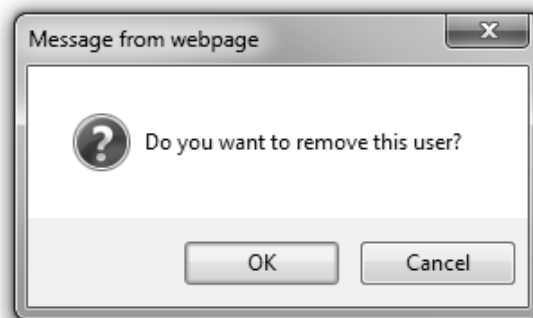
Note

Once the user name is set, it cannot be modified. Simply remove the user name and add a new user with desired name.

How to remove a user

To remove a user name from the User List,

1. Go **Setup > Basic Configuration > Users**.
2. Select the user name to remove on the User List.
3. Click the Remove button below the User List.
4. When the dialog box appears to confirm your request, click the **OK** button.



5. Check if the user name is removed from the list on the page.

5.8.2. Date & Time

Time setting is very significant for all parts of the product server because it affects the log of streaming and burnt-in text of video. To configure the date and time, go to **Setup > Basic Configuration > Date & Time**.

Current Camera/Encoder Time

It shows the camera's recognized time.

Configuration

Time zone

Select the proper time zone of where the camera is installed from the drop-down box. Daylight saving time applies automatically.

Sync source

The camera/encoder is synchronized with the Real-time clock by default whenever the camera/encoder reboots once or when the system time is twelve at night if 24-Hour option is on. If NTP server is selected, the system time will be synchronized with the predefined the NTP server.

Real time clock on system – Time setting relies on the Real-time clock which is inside the camera. The clock chip is attached as internal part of the product, and it is recharged automatically when the device is powered.

NTP server – Time setting relies on designated NTP server. Users can configure available NTP servers at **Setup > Network Configuration > NTP**. Four NTP server lists can be added, and the first top list is the default source of the time (time.windows.com).

Date and time format

Select the desired date and time format from the drop-down list box.

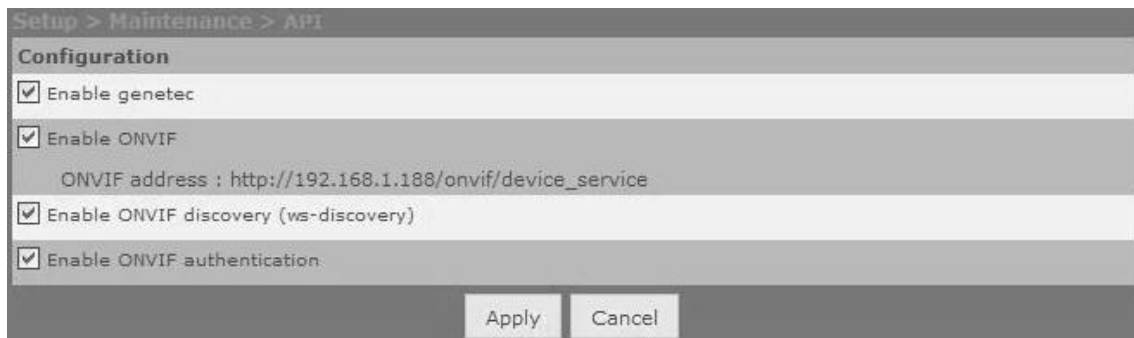
New camera/encoder time

Select one of 3 options:

- Synchronize the camera/encoder time with current client system time
- Synchronize the camera/encoder time with NTP server
- Set the camera/encoder time manually

5.8.3. API

To activate the third party APIs or Onvif protocol, go to **Setup > Maintenance > API**.



The screenshot shows the 'Setup > Maintenance > API' configuration page. It has a 'Configuration' section with four checked options: 'Enable genetec', 'Enable ONVIF', 'Enable ONVIF discovery (ws-discovery)', and 'Enable ONVIF authentication'. Below these options, the 'ONVIF address' is set to 'http://192.168.1.188/onvif/device_service'. At the bottom right, there are 'Apply' and 'Cancel' buttons.

Enable genetec

Protocols of Omnicast is supported.

Enable ONVIF

ONVIF is supported.

- **Enable ws-discovery**: This function enables users to browse all the ONVIF supported cameras on the network.
- **Enable authentication**: This function asks users to type IP and Password.
 - **Replay attack protection**: This reinforces authentication by preventing replay attack.

5.8.4. Language

English, Korean and Chinese are supported in the Web interface, with English as the default language.

5.8.3. Firmware Upgrade

To update firmware, go to **Setup > Maintenance > Firmware Upgrade** and follow the directions below.



The screenshot shows the 'Setup > Maintenance > Firmware Upgrade' page. It has a section titled 'Upload Firmware Image'. Below this, it shows 'Installed firmware : 1.5.0.9(Official Release Patch)'. There is a label 'Select firmware image file:' followed by a text input field and a button labeled '参照...' (Reference).

Firmware update via the tool

To enable the firmware update via the IPAdminTool.exe, highlight the device to upgrade the firmware, and click "Update" button. Then, the FWUpdate window appears where users can set multiple devices to upgrade simultaneously.

Refer to the '*IPAdminTool User's Manual.pdf*' for the details how to update the firmware on your devices by using this tool.

Firmware update on the web browser

Firmware Upgrade

Please wait! Rebooting is in progress to complete the firmware update.

```
start: Mon Apr 17 03:13:42 GMT 2000
Firmware version: 1.6.0.99
[Images]
bootloader: 1.1.95
kernel: 1.0.33
rootfs: 1.6.0
stellaris: 3.002
ubl: 1.5.3
encmp: 1.0.2
```



To update the firmware on the web browser, click the Browse button and search the firmware file. If you select the file to upload, the *Upload* button appears next to the *Browse* button. Click the *Upload* button to update the firmware.

Firmware update with any tool to support Onvif firmware update feature.

To update the firmware using the Onvif protocol, please turn on **Enable Onvif** at **Setup > Maintenance > API**.



Caution

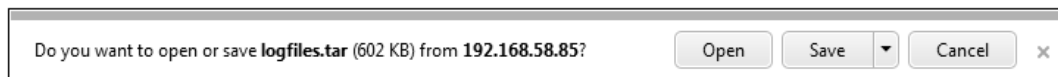
Remind that the process of firmware update should not be interrupted. If the update process is interrupted (such as by a power outage), the device will go into safety mode

5.8.4. System Log

To download system log, go to **Setup > Maintenance > System Log** and follow the directions as below.



Click **Download System Log**, then file download dialog box will appear.



FTP Log Backup Mode

- **Enable auto backup:** Ticking the checkbox enables automatic backup to the FTP server configured under **FTP Log Backup Configuration**.
- **Backup:** Clicking the button enables users to backup system logs to the client PC.

FTP Log Backup Configuration

This is a section to set up FTP configuration to enable automatic backup of system logs.

Show notification list

Clicking the button shows all available FTP notification list at the bottom.

Load notification into setting

Clicking **Load notification into setting** will copy pre-defined FTP server information in **FTP Notification List** under **Event Configuration** into **FTP Log Backup Configuration**.

5.8.5. Event Search

To search all the recorded events, go to **Setup > Maintenance > Event Search**.

This feature enables searches for the recorded events.

To download recording files, go to **Storage > Search & Download**, or refer to **4.3. Search and file-download** in this manual.

Event Search for cameras

Setup > Maintenance > **Event Search**

☐ Today
 ☐ a Week
 ☐ 15 Days
 ☐ 1 Month
 ☐ 3 Month
 ☐ All

~

☐ All
 ☐ Motion
 ☐ DI
 ☐ VCA
 ☐ Config

Num	Event Rule Name	Type	Rule Time	Description
1	-	config	2013-10-16 11:13:15	
2	MD	md	2013-10-16 11:13:09	zone2
3	MD	md	2013-10-16 11:13:07	zone2
4	MD	md	2013-10-16 11:13:05	zone2
5	MD	md	2013-10-16 11:13:03	zone2
6	MD	md	2013-10-16 11:13:00	zone2
7	MD	md	2013-10-16 11:12:58	zone2
8	MD	md	2013-10-16 11:12:56	zone2
9	MD	md	2013-10-16 11:12:54	zone2
10	MD	md	2013-10-16 11:12:47	zone2
11	MD	md	2013-10-16 11:12:45	zone2
12	MD	md	2013-10-16 11:12:43	zone2
13	MD	md	2013-10-16 11:12:41	zone2
14	MD	md	2013-10-16 11:12:38	zone2
15	MD	md	2013-10-16 11:12:36	zone2
16	MD	md	2013-10-16 11:12:34	zone2
17	MD	md	2013-10-16 11:12:32	zone2
18	MD	md	2013-10-16 11:12:30	zone2
19	MD	md	2013-10-16 11:12:25	zone2
20	MD	md	2013-10-16 11:12:23	zone2

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Event Search for encoders

Setup > Maintenance > **Event Search**

☐ Today
 ☐ a Week
 ☐ 15 Days
 ☐ 1 Month
 ☐ 3 Month
 ☐ All

~

☐ All
 ☐ Motion
 ☐ DI
 ☐ VCA
 ☐ Config
 ☐ Video-in

Num	Event Rule Name	Type	Rule Time	Description
1	event_video	vsignal	2000-04-14 00:05:09	detect
2	event_video	vsignal	2000-04-14 00:05:08	loss
3	-	config	2000-04-14 00:04:54	
4	-	config	2000-04-14 00:04:34	
5	-	config	2000-04-11 05:12:18	
6	-	config	2000-04-11 05:10:59	

1 |

5.8.8. Configuration Import/Export

For backup or apply same settings to other device purposes, configuration file can be imported or exported. **Setup > Maintenance > Configuration Import/Export**



Click **Backup Start** to save latest settings as a file. Within few second, the web will ask a user to save or open the configure.dat file.



To overwrite latest settings, click Browse button and load the configure.dat file.

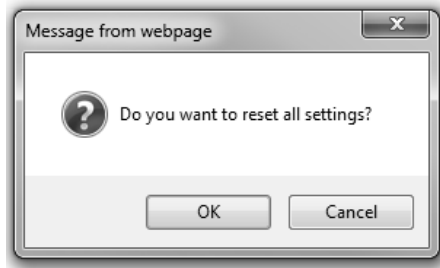
5.8.6. Reset All Settings

All information is initialized except user, network and time zone.

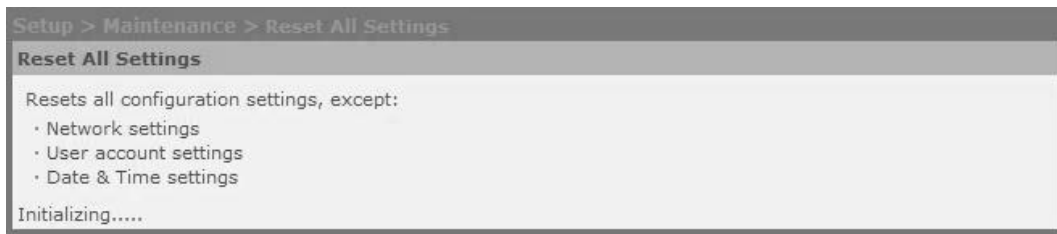
To reset the system setting to the factory default setting, go to **Setup > Maintenance > Reset All Setting** and follow the directions below.



1. Click the *Reset All settings* button, and then the dialog box appears as below.



2. Click the OK button to reset all settings. When a dialog box appears to ask rebooting the system, click the OK button.



3. The reboot starts automatically. Then, count for 60 seconds after "Initializing....." displays.
4. Check if all the settings are returned to the factory default values.

5.8.7. Reboot

To reboot the system on the web browser, go to **Setup > Maintenance > Reboot**.



Click the Start Reboot button to reboot the device.



5.9. About

5.9.1.Information

To find the product information including the hardware specification and software version, go to **Setup > About > Information**.

Setup > About > Information	
USN :	D60C0186D
Full name :	ZN-DNT352XE-MIR Full HD MFZP Outdoor
Short name :	ZN-DNT352XE-MIR
Firmware version :	1.5.5.7(Limited Release)
Userfs version :	N/A
Micro-P version :	3.002
Manufacturer :	GANZ
MAC address :	00:1C:B8:C0:18:6D
Pan/Tilt :	None
Fan/Heater :	Yes/Yes
Focus/Zoom :	MFZ
DC Auto-Iris :	DC-IRIS
Day/Night :	TDN
IR Illumination :	SMART-IR
TV-Out :	1
AudioIn/AudioOut :	1/1
DI/DO :	1/1
RS-485 :	0
USB :	0
SD :	1

5.9.2. License

To find the license information of the open source software that is used in the camera/encoder.

APPENDIX(A) : ENCODERS

Video-In

This part is corresponding to **5.2.1. Camera (Channel naming/video format/color control)** in Video and Audio. Only the different features from cameras will be covered on this part. For the other common features, refer to **5.2.1. Camera (Channel naming/video format/color control)**.

The screenshot shows a web-based configuration interface for video input. It is divided into several sections:

- General:** Includes a 'Friendly name' field with the value 'ZS1-4DS'.
- Video Standard Format:** A dropdown menu currently set to 'PAL'.
- Video Appearance:** Contains sliders and input fields for 'Brightness', 'Contrast', 'Saturation', and 'Sharpness', all set to 128. Below these are checkboxes for 'Vertical flip' and 'Horizontal mirror', both of which are checked.
- Adjust:** Contains sliders and input fields for 'Vertical Delay' (set to 24) and 'Horizontal Delay' (set to 10).
- High Performance Image Processing:** Includes a checkbox for 'Enable De-interlacing', which is currently unchecked.

 At the bottom of the interface are three buttons: 'Apply', 'Cancel', and 'Preview'.

Video Standard Format

This indicates the current video standard format that is configured by the hardware switch. Please see the installation guide of the corresponding device for more detailed information.

Vertical/Horizontal Delay

If the images from camera do not fit into the screen view, users have an option to adjust the image position vertically or horizontally to fit images into screen.

For PAL, the range of vertical delay is from 2 to 25, and the range of horizontal delay is from 1 to 128. For NTSC, the range of horizontal delay is from 2 to 19, and the range of horizontal delay is 1 to 128. For PAL, the default value for vertical delay is 24 and horizontal delay is 6. For NTSC, the default value for vertical delay is 16 and horizontal delay is 12.

	Vertical			Horizontal		
	Min	Default	Max	Min	Default	Max
PAL	1. 5	24	128	2	10	128
NTSC	2	18	128	2	15	128

High Performance Image Processing

Selecting 'Enable De-interlace' will execute the encoder to merge even fields and odd fields to display a high performance level image streaming.

Encoder Profile

This part is corresponding to **Stream Configuration** in **5.2.5. Encoder profile**.

Only the different features from cameras will be covered on this part. For the other common features for stream configuration, refer to **5.2.5. Encoder profile**.

Resolution

The supported resolution in pixels for the current stream profile is listed on the drop down box. Select the desired resolution.

Encoders	
NTSC	PAL
D1 (720x480)	D1 (720x576)
4CIF (704x480)	4CIF (704x576)
2CIF (704x240)	2CIF (704x288)
VGA (640x480)	VGA (640x480)
CIF (352x240)	CIF (352x288)
QVGA (320x240)	QVGA (320x240)
QCIF (176x120)	QCIF (176x120)

Maximum FPS

Define the desired frame rate per second.

The max frame rate is 25 when the video standard format is PAL. For NTSC, the maximum frame rate is 30.

GOP

This parameter defines the length of the group of pictures. If this value is set to 1, the video stream will only have one I-frame. Keep this value high to minimize bandwidth. The max GOP size is 25 when the video standard format is PAL. For NTSC, the maximum GOP size is 30.

Information

This part is corresponding to **5.9.1. Information** in **About**. There is some additional information on the information page in case the device is a blade card, or an encoder, or a rack.

Setup > About > Information	
USN :	D60C0186D
Full name :	ZS1-4DB2
Short name :	ZS1-4DB2
Firmware version :	1.5.5.7(Limited Release)
Userfs version :	N/A
Micro-P version :	3.002
Manufacturer :	GANZ
MAC address :	00:1C:B8:C0:18:6D
Pan/Tilt :	None
Fan/Heater :	Yes/Yes
Focus/Zoom :	MFZ
DC Auto-Iris :	DC-IRIS
Day/Night :	TDN
IR Illumination :	SMART-IR
TV-Out :	0
AudioIn/AudioOut :	1/1
DI/DO :	1/1
RS-485 :	0
USB :	0
SD :	1
Rack information :	R224B2M0

Rack Information	
Temperature(C) :	65496.0, 65496.0, 65496.0
Voltage(V) :	35.0, 35.0
Fan state :	ok, ok, ok
<input type="button" value="Renew"/> <input type="button" value="Cancel"/>	

Module ID appears if the device is an encoder having a module ID.

Rack information appears if the device is a rack. The rack information shows a series of numbers with hyper-text, which indicates rack number, blade number, and module number in a row.

Clicking the hyper-text will bring a pop up window to display additional information as follows.

- Temperature
- Input power status
- Fan status

Clicking **Renew** shows updated information.

REVISION HISTORY

MANUAL#	DATE (M/D/Y)	COMMENTS
01A.01	Nov/09/2011	Created
02A.01D	Feb/29/2012	FW V 1.2.0. updated
02A.02	Apr/05/2012	Official FW V 1.2.0 updated
02A.03	May/17/2012	Contents update and fixes
02A.04	Aug/16/2012	Live Page screen capture (PTZ) part removed
02A.05	Sep/04/2012	Minor description and grammar corrections
02A.06	Oct/09/2012	Zoom/Focus Page's "Calibration" button update
03A.01	Oct/17/2012	FW V.1.4.0 updated
03A.02	Nov/21/2012	Repositioning and Information UI update
03A.03	Dec/03/2012	5.2.3 image and Event Action tab label fix
04A.04	Jan/24/2013	FW V1.4.0.7 Updated / Recording settings changed.
04A.05	Feb/22/2013	FW V1.4.0.10 Updated / Day & Night settings changed
04B.01	Feb/26/2013	FW V1.4.1.6 Updated / PTZ part
04C.02	Apr/25/2013	Minor corrections
05A.03	Jun/7/2013	FW V1.5.0.9 Updated.
11-2013-A	Nov/07/2013	FW V1.6.0.4 Updated.

** Refer to **WHAT'S NEW** page (p.5) for more detailed update contents.